VPH-1041QM/1042QM

SERVICE MANUAL

AEP Model
VPH-1041QM
Chassis No. SCC-B82A-A
VPH-1042QM
Chassis No. SCC-B85A-A

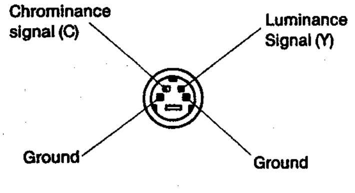
SPECIFICATIONS

Optical

Projection system	3 picture tubes, 3 lenses, direct projection system
Picture tube	5.5-inch high-brightness monochrome tubes, with coolant sealed
Projection lens	VPH-1041QM: High-performance hybrid lenses F1.0/130 mm VPH-1042QM: HACC (High Resolution Aspherical and Color Corrected) lenses F1.0/135 mm
Projected picture size	70 – 250 inches measure diagonally Factory-adjusted to 100 inches measured diagonally
Light output	600 lm

General

Color system	PAL, SECAM, NTSC and NTSC$_{4.43}$ systems, switched automatically
Resolution	1,000 TV lines (RGB inputs) 650 TV lines (video input)
RGB inputs	Character display capacity: 2000 character (80 letters × 25 lines) Horizontal frequency: 15.75 kHz Vertical frequency: 50/60 Hz
Test signal	Cross-hair test pattern generator is incorporated.
Speaker	5 × 9 cm (2 × 3½ inches) 1 unit, 3 W
Inputs	**LINE IN** S VIDEO: 4-pin mini DIN connector Y (luminance) signal: 1 Vp-p ±2 dB, sync negative, 75 ohms terminated C (chrominance) signal: burst 0.286 Vp-p ±2dB, 75 ohms terminated



VIDEO: BNC connector
  Composite video input,
  1 Vp-p ±2 dB, sync negative,
  75 ohms terminated
AUDIO: phono jack
  VPH-1041QM/1042QM:
  0.5 Vrms
  Impedance: more than 47 k ohms

RGB IN

R: BNC connector
  Red input, 0.7 Vp-p ±2 dB,
  75 ohms terminated, positive
G/G SYNC: BNC connector
  Green input, 0.7 Vp-p ±2 dB,
  75 ohms terminated, positive
  Green with sync input,
  1 Vp-p ±2 dB, 75 ohms terminated, positive
B: BNC connector
  Blue input, 0.7 Vp-p ±2 dB,
  75 ohms terminated, positive
SYNC/HD: BNC connector
  Composite sync input,
  0.3 – 4 Vp-p,
  75 ohms terminated, negative
  Horizontal sync input,
  0.3 – 4 Vp-p,
  75 ohms terminated, negative
VD: BNC connector
  Vertical sync inpout, 0.3 – 4 Vp-p,
  75 ohms terminated, negative

– Continued on next page –

MICROFILM

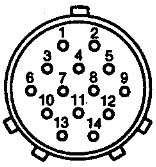
COLOR VIDEO PROJECTOR

SONY®

Output **MONITOR OUT**
VIDEO: BNC connector
Composite video output,
1 Vp-p ±2 dB, impedance
75 ohms, selected video output
With the remote controller:
video signal from the controller*
Without the remote controller:
video signal from the LINE IN connector*

* The separated Y and C signals input to the S VIDEO connector is output as a composite video signal.

TO VPR-722S connector
14-pin connector



Pin No.	Signal	Pin No.	Signal
1	Ground	8	Input select
2	+28V ⎓ 60mA	9	Audio (incl. volume control)
3	Hue 1	10	Brightness
4	Hue 2	11	Sharpness or chrominance signal
5	Hue 3	12	Color
6	Video or luminance signal	13	Picture
7	Ground (video)	14	Power ON: 12 V OFF: 0 V

Power requirements
VPH-1041QM/1042QM: 220 – 240 V AC, 50/60 Hz
Power consumption
VPH-1041QM/1042QM: 210 W
Dimensions Approx. 532 × 288 × 597 mm (w/h/d)
(21 × 11 3/8 × 23 5/8 inches)
With the brackets pushed down,
incl. projecting parts and controls
Weight VPH-1041QM: Approx. 30 kg (66 lb 2 oz)
VPH-1042QM: Approx. 38 kg (83 lb 12 oz)
Accessories supplied
AC power cord (1)
Spacer for 200" projection (4)

Design and specifications subject to change without notice.

Optional Accessories

Remote controller VPR-722S
Projector pedestal SU-722
Projector suspension support PSS-722, PSS-10
Screen VPS-100F1 (100" flat)
VPS-72HG1 (72" curved)
VPS-100HG1 (100" curved)
VPS-700R (70", rear projection)
Carrying case VLC-1040
CCQ BRS cables
Shielded cable SMF-506 (D-sub 25-pin ⟷ 4 BNC)

WARNING !!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL TO SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

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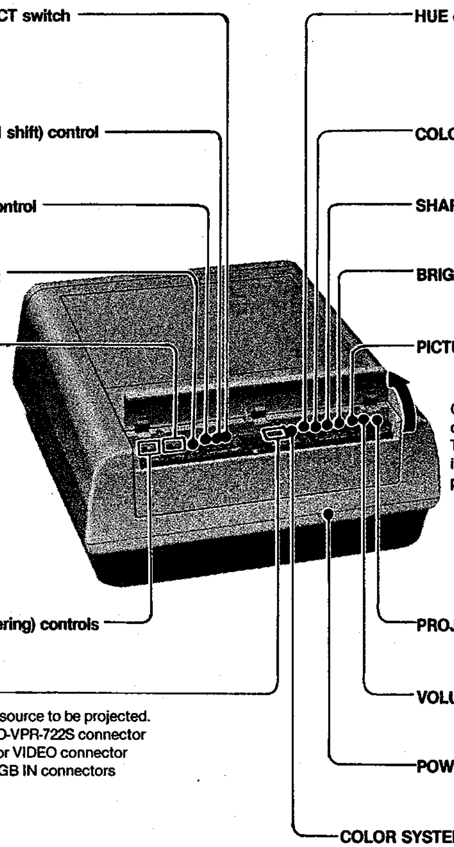
SECTION 1
GENERAL

1-1. LOCATION AND FUNCTION OF CONTROLS

For details on the use of each control, refer to the pages in ●.

Control panel



RGB BLUE MODE SELECT switch

RGB H SHIFT (horizontal shift) control

V HOLD (vertical hold) control

NORM/TEST (normal/test signal) selector

V CENT (vertical centering) controls

H CENT (horizontal centering) controls

INPUT SELECT buttons
Press to select the program source to be projected.
LINE: For inputs from the TO-VPR-722S connector or the LINE S VIDEO or VIDEO connector
RGB: For inputs from the RGB IN connectors

HUE control

COLOR control

SHARPNESS control

BRIGHT (brightness) control

PICTURE control

Open the panel cover.
The control panel is illuminated when the panel cover is open.

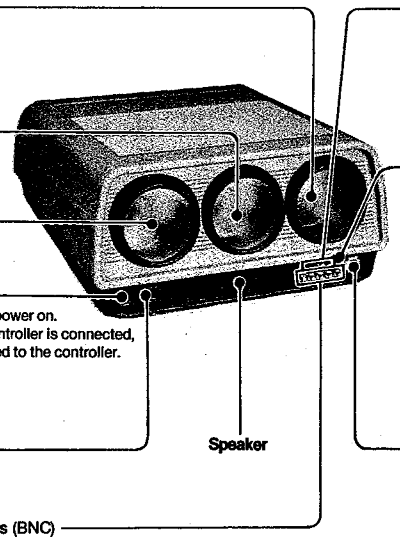
PROJECTOR switch

VOLUME control

POWER lamp

COLOR SYSTEM selector
Normally set to AUTO.
Set to SECAM when the color of a picture from SECAM color sources is disturbed.

Connector panel



Blue lens

Green lens

Red lens

POWER swtich
Depress to turn the power on.
When the remote controller is connected, power will be supplied to the controller.

AC IN socket

Speaker

RGB IN connectors (BNC)
R, G/G SYNC, B, SYNC/HD, VD connectors

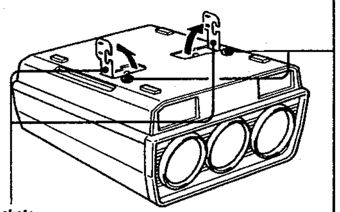
LINE IN (line input) connectors
S VIDEO (4-pin, mini DIN)
VIDEO (BNC)
AUDIO (phono)
Note
The VIDEO connector is disconnected automatically when a cable is connected to the S VIDEO connector.

MONITOR OUT (monitor output) connector (BNC)
The signal input to the TO VPR-722S, S VIDEO or VIDEO input connector is output from this connector.*
If signals are connected to each connector, the output signal is selected according to the following priority: TO VPR-722S, S VIDEO and VIDEO.

TO VPR-722S connector (14-pin, male)

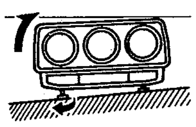
* The separated Y (luminance) and C (chrominance) signals input to the S VIDEO connector is output as composite video signal.

Bottom

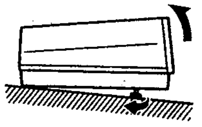


Brackets
For attaching the projector to the PSS-722 suspension support or the SU-722 pedestal.

Adjustable feet
The horizontal balance and angle of the projector can be adjusted with these feet.
The feet are factory-adjusted to the shortest length for a flat base.



Turn either foot to obtain horizontal balance.

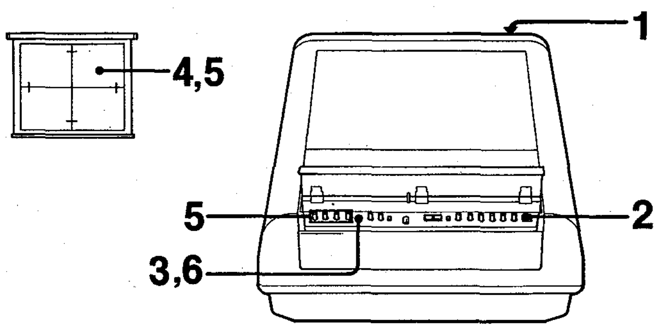


Turn both feet to adjust the angle.

1-2. POSITION AND REGISTRATION ADJUSTMENT

Installation and preliminary adjustments should be carried out by qualified Sony personnel.

When the projector is installed on a desk or on the floor using the pedestal, it can be easily moved but it may be necessary to readjust the registration.

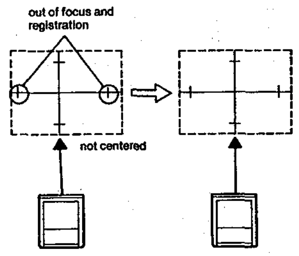


1 Depress the POWER switch (ON).

2 Depress the PROJECTOR switch (ON).

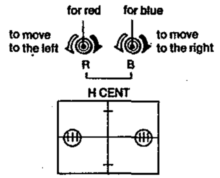
3 Set the NORM/TEST selector to TEST.
The built-in cross-hair test pattern will be displayed.

4 **Check the focus and centering.**
If the test pattern is not centered and focused on the screen, move the projector slightly so that the pattern is displayed clearly.

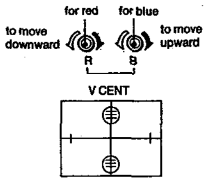


5 **Check the convergence of red, green and blue.**
If the red and blue lines do not converge with the green line, adjust the H CENT and V CENT controls so that the three lines converge and the pattern is seen as white.

To move the red and blue vertical lines



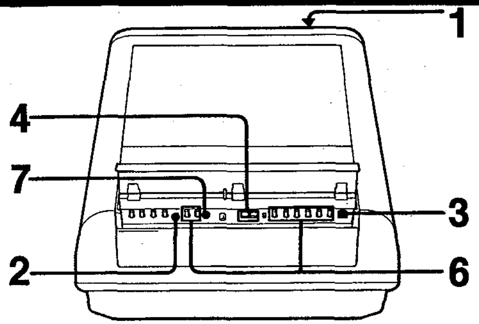
To move the red and blue horizontal lines



6 After the adjustment is complete, set the NORM/TEST selector to NORM.

1-3. PROJECTING

Operation



1 Depress the POWER switch (ON).

2 Make sure that the NORM/TEST selector is set to NORM.

3 Depress the PROJECTOR switch (ON).
The green POWER lamp will light.

4 Select the program to be projected by pressing the LINE or RGB INPUT SELECT button.

5 Turn on the connected equipment.
The picture will be projected on the screen and the sound will be heard from the speaker.

6 Adjust the picture and sound to your preference.
See below.

7 For RGB programs, select the position of the RGB BLUE MODE SELECT switch.
See "RGB BLUE MODE SELECT switch".

To turn off the projector
Press the PROJECTOR switch again (OFF).

To turn off the power
Press the POWER switch (OFF).

RGB BLUE MODE SELECT switch
This switch is effective only for RGB inputs. Select the position in which the display is easiest to view.

NORMAL	Normally set to this position.
BB	To change the black background to blue.
CB	To lighten the blue part of the display.

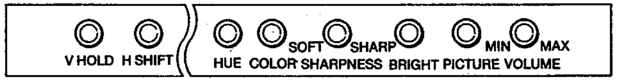
1-4. INSTALLATION DIAGRAMS (1)

Operation Using the Remote Controller

When the optional Sony VPR-722S remote controller is connected to the TO VPR-722S connector, keep the POWER switch on the projector at ON and perform steps 3, 4, 6 and 7 above on the controller. The controls on the projector do not function.

Note
V HOLD and H SHIFT adjustments cannot be operated with the controller.

Picture and Sound Adjustments


V HOLD
H SHIFT
HUE
COLOR
SOFT
SHARP
SHARPNESS
BRIGHT
PICTURE
MIN
MAX
VOLUME

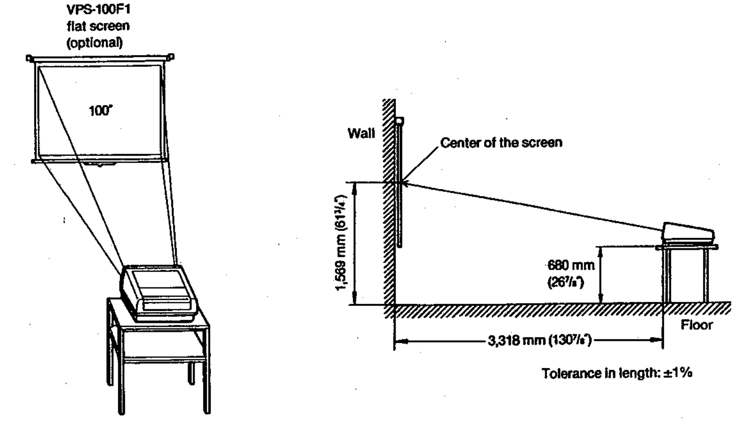
VOLUME	Turn toward MAX to increase volume, and toward MIN to decrease it.
PICTURE	Turn clockwise to increase picture contrast, color intensity and brightness in the proper ratio, and counterclockwise to decrease them.
BRIGHT	Turn clockwise for more brightness, and counterclockwise for less.
SHARPNESS	Turn clockwise for sharp picture, and counterclockwise for soft.
COLOR	Turn clockwise for more color intensity, and counterclockwise for less.

HUE	(Effective only for a program of the NTSC or NTSC4.43 color system) Turn clockwise to make the skin tones greenish, and counterclockwise to make them purplish.
RGB H SHIFT	(Effective only for RGB inputs) Turn to adjust the horizontal position of the picture.
V HOLD	If the picture rolls vertically, turn until the picture stabilizes.

For the same type of installation in another place, no readjustment is required, although the projector should be placed in the proper position.
The projector is preadjusted at the factory for 100" projection, and internal conversion is necessary for other projection sizes.

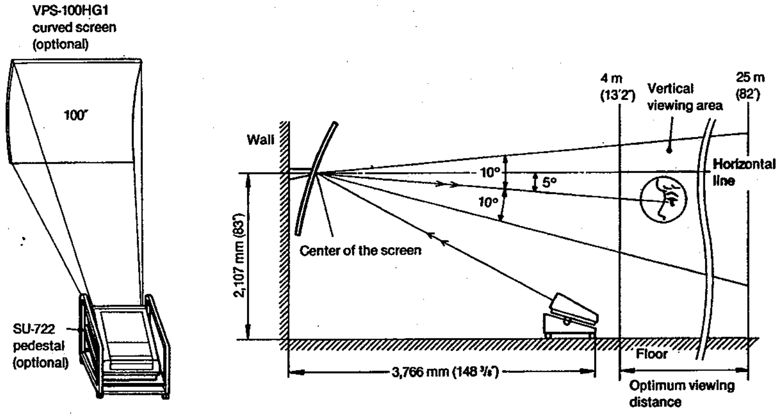
For 100" Projection

Desk


VPS-100F1
flat screen
(optional)
100"
Wall
Center of the screen
1,569 mm (61 3/4")
680 mm
(26 7/8")
Floor
3,318 mm (130 7/8")

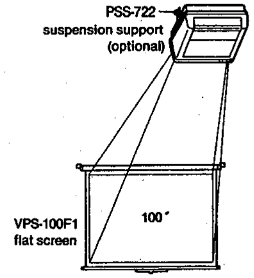
Tolerance in length: ±1%

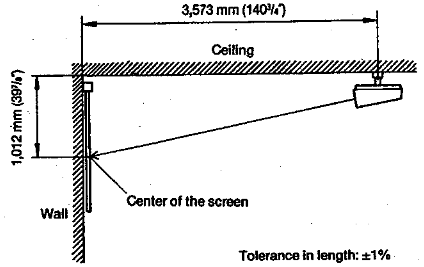
Floor


VPS-100HG1
curved screen
(optional)
100"
SU-722
pedestal
(optional)
Wall
4 m
(13'2")
Vertical
viewing area
25 m
(82')
Horizontal
line
10°
5°
10°
Center of the screen
2,107 mm (83")
3,766 mm (148 3/8")
Floor
Optimum viewing
distance

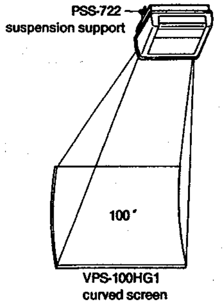
Tolerance length: ±1%

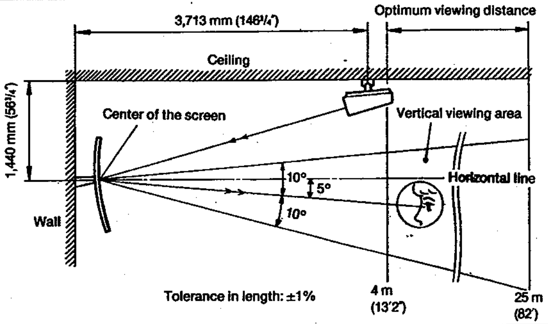
Ceiling


PSS-722
suspension support
(optional)
100"
VPS-100F1
flat screen


3,573 mm (140¾")
Ceiling
1,012 mm (39⅞")
Wall
Center of the screen

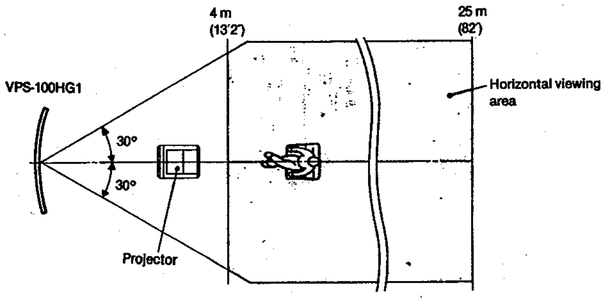
Tolerance in length: ±1%


PSS-722
suspension support
100"
VPS-100HG1
curved screen


3,713 mm (146¼")
Optimum viewing distance
Ceiling
1,440 mm (56¾")
Center of the screen
Vertical viewing area
10°
5°
10°
Horizontal line
Wall
4 m
(13'2")
25 m
(82')

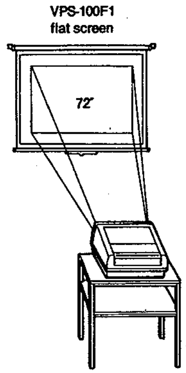
Tolerance in length: ±1%

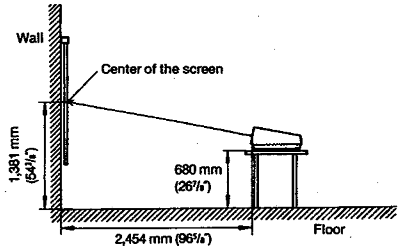
Horizontal viewing area for the VPS-100HG1


4 m
(13'2")
25 m
(82')
VPS-100HG1
Horizontal viewing
area
30°
30°
Projector

For 72" Projection

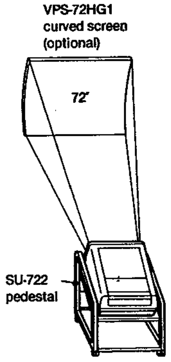
Desk

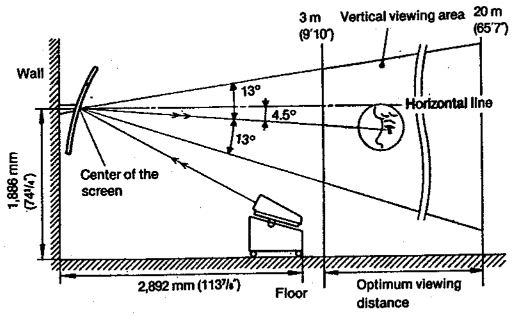

VPS-100F1
flat screen
72"


Wall
Center of the screen
1,381 mm
(54⅜")
680 mm
(26⅞")
2,454 mm (96⅝")
Floor

Tolerance in length: ±1%

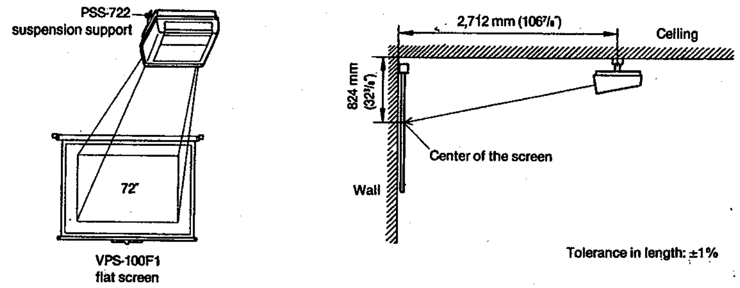
Floor


VPS-72HG1
curved screen
(optional)
72"
SU-722
pedestal

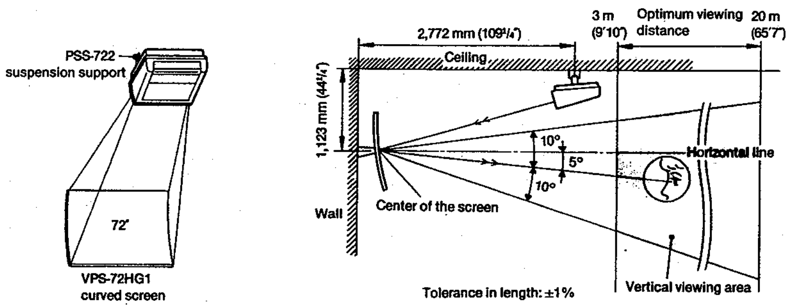

3 m
(9'10")
Vertical viewing area
20 m
(65'7")
Wall
13°
4.5°
13°
Horizontal line
Center of the
screen
1,886 mm
(74¼")
2,892 mm (113⅞")
Floor
Optimum viewing
distance

Tolerance in length: ±1%

Ceiling

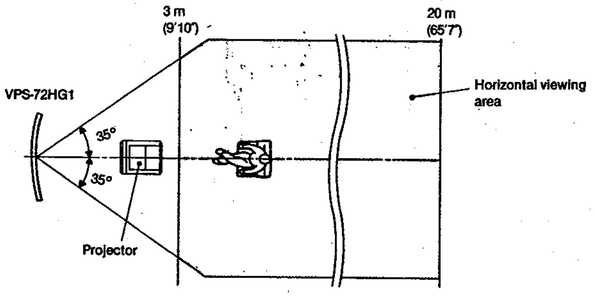

PSS-722 suspension support
72"
VPS-100F1 flat screen
2,712 mm (106 7/8")
Ceiling
824 mm (32 3/8")
Center of the screen
Wall

Tolerance in length: ±1%


PSS-722 suspension support
72"
VPS-72HG1 curved screen
2,772 mm (109 1/4")
Ceiling
1,123 mm (44 1/4")
3 m (9'10")
Optimum viewing distance
20 m (65'7")
10°
5°
10°
Horizontal line
Center of the screen
Wall
Vertical viewing area

Tolerance in length: ±1%

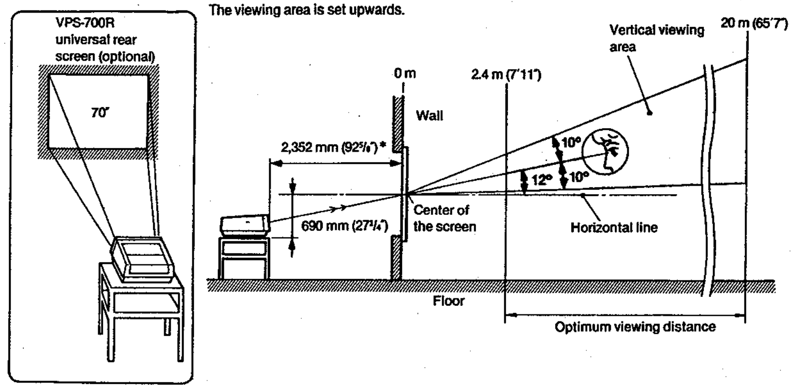
Horizontal viewing area for the VPS-72HG1


3 m (9'10")
20 m (65'7")
VPS-72HG1
35°
35°
Projector
Horizontal viewing area

For 70" Rear Projection

Desk

The viewing area is set upwards.

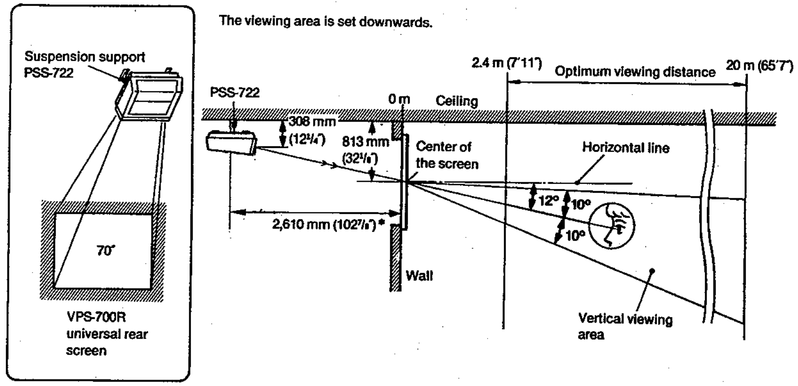

VPS-700R universal rear screen (optional)
70"
0 m
2.4 m (7'11")
20 m (65'7")
Vertical viewing area
Wall
2,352 mm (92 5/8")*
10°
12°
10°
690 mm (27 1/4")
Center of the screen
Horizontal line
Floor
Optimum viewing distance

* Distance between the rear of the screen and the center of the G lens.

Tolerance in length: ±1%

Ceiling

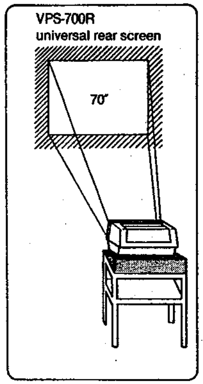
The viewing area is set downwards.


Suspension support PSS-722
70"
VPS-700R universal rear screen
PSS-722
0 m
Ceiling
2.4 m (7'11")
Optimum viewing distance
20 m (65'7")
308 mm (12 1/4")
813 mm (32 1/8")
Center of the screen
Horizontal line
12°
10°
10°
2,610 mm (102 7/8")*
Wall
Vertical viewing area

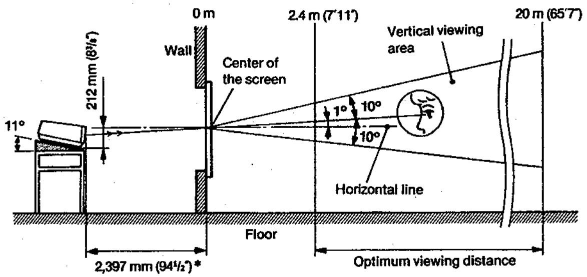
* Distance between the rear of the screen and the center of the G lens.

Tolerance in length: ±1%

Level Projection


VPS-700R
universal rear screen
70"

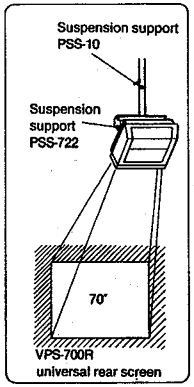
The viewing area is set approximately direct (approx. 1° upward).


0 m
2.4 m (7'11")
20 m (65'7")
Wall
Center of the screen
Vertical viewing area
212 mm (8 3/8")
11°
1°
10°
10°
Horizontal line
Floor
2,397 mm (94 1/2")*
Optimum viewing distance

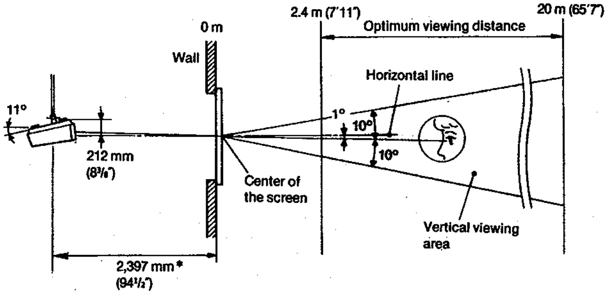
* Distance between the rear of the screen and the center of the G lens.

Tolerance in length: ±1%

Upturned Level Projection


Suspension support PSS-10
Suspension support PSS-722
70"
VPS-700R
universal rear screen

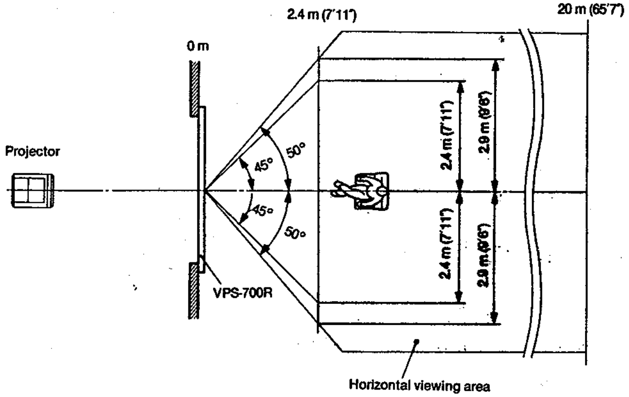
The viewing area is set approximately direct (approx. 1° downward).


0 m
2.4 m (7'11")
20 m (65'7")
Optimum viewing distance
Wall
Horizontal line
11°
1°
10°
10°
212 mm (8 3/8")
Center of the screen
Vertical viewing area
2,397 mm* (94 1/2")

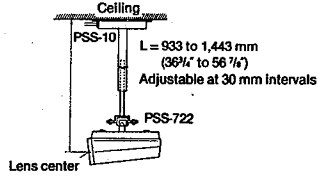
* Distance between the rear of the screen and the center of the G lens.

Tolerance in length: ±1%

Horizontal viewing area for the VPS-700R


2.4 m (7'11")
20 m (65'7")
0 m
Projector
45°
45°
50°
50°
2.4 m (7'11")
2.4 m (7'11")
2.9 m (9'6")
2.9 m (9'6")
VPS-700R
Horizontal viewing area

To adjust the distance between the ceiling and the projector, use the optional PSS-10 projector suspension support in combination with the PSS-722.

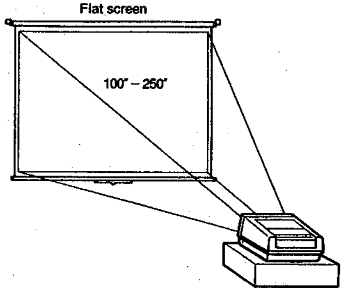

Ceiling
PSS-10
L = 933 to 1,443 mm
(36 3/4" to 56 7/8")
Adjustable at 30 mm intervals
PSS-722
Lens center

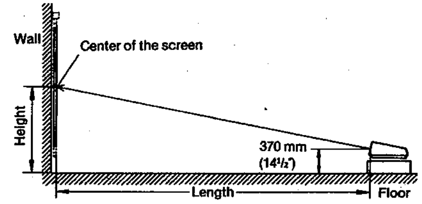
1-5. SYSTEM CONNECTIONS

For 100″-250″ Projection

Decide the length and height according to the size of the screen to be used.
For a screen not described in the tables, set the length approximately 1.6 times screen width.

Floor

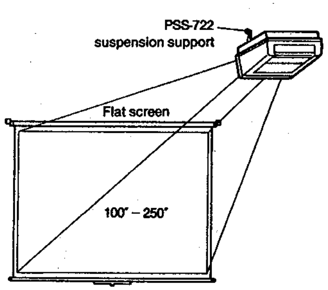

Flat screen
100″ – 250″

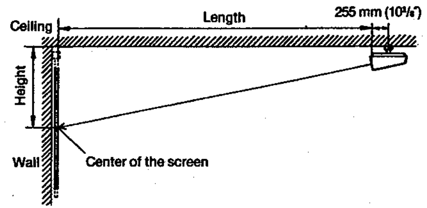

Wall
Center of the screen
Height
370 mm
(14½″)
Length
Floor

Screen size		150 inches	200 inches	250 inches
Length	mm	4850 (191″)	6410 (252½″)	7960 (313½″)
Height	mm	1410 (55½″)	1740 (68½″)	2080 (82″)

Tolerance in length: ±1%

Ceiling


PSS-722
suspension support
Flat screen
100″ – 250″


Ceiling
Length
255 mm (10⅛″)
Height
Wall
Center of the screen

Screen size		150 inches	200 inches	250 inches
Length	mm	4850 (191″)	6410 (252½″)	7960 (313½″)
Height	mm	1350 (53¼″)	1680 (66¼″)	2020 (79½″)

Tolerance in length: ±1%

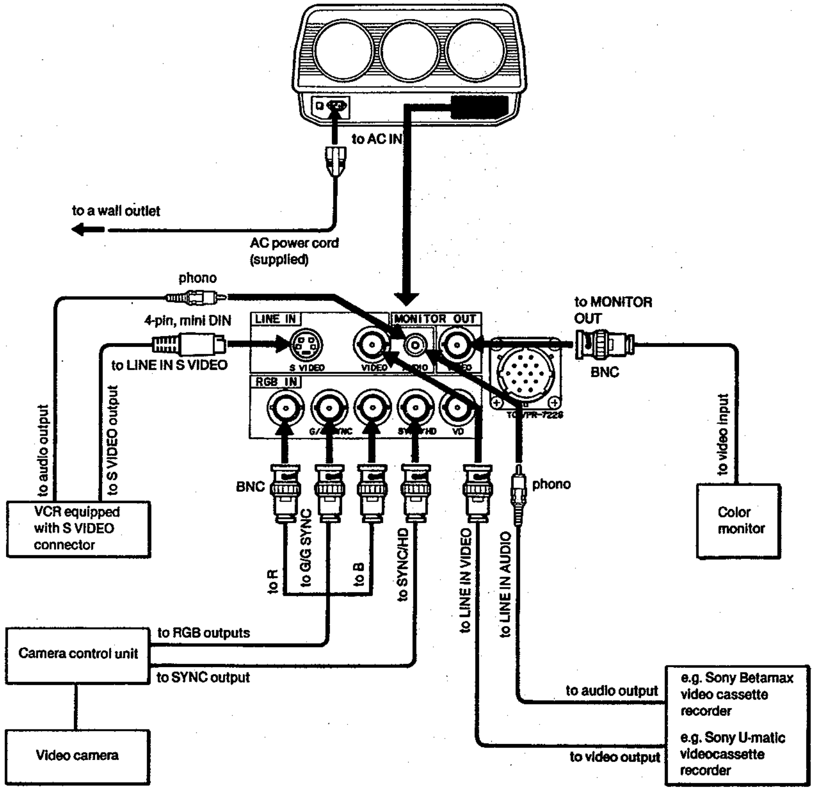
To use 150″ to 250″ screens, the projector should be converted for 200″ projection. For conversion, consult the qualified Sony personnel.

To transport the projector, use the VLC-1040 carrying case (optional).

Connecting Notes

- First make sure that the power to each piece of equipment is turned off.
- The cable connectors should be fully inserted into the jacks. A loose connection may cause hum and noise.
- To disconnect the cable, pull it out by grasping the plug. Never pull the cable itself.
- Use suitable connecting cables according to the equipment to be connected.
- For connection to the VIDEO IN and TO VPR-722S connectors, the connecting cable may be extended to max. 50 m (164 feet ½ inch). If the connecting cable is longer than 50 m, picture quality may be impaired somewhat.
- Read the instruction manual of the equipment to be connected.

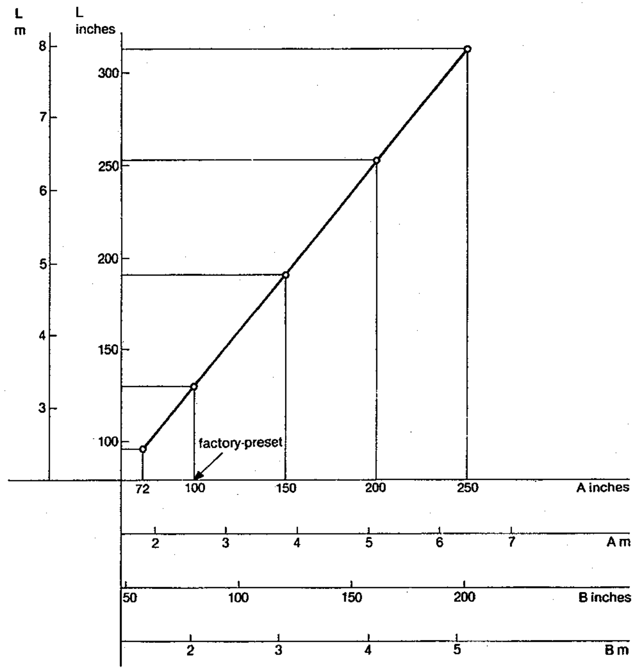
Without Using the Remote Controller

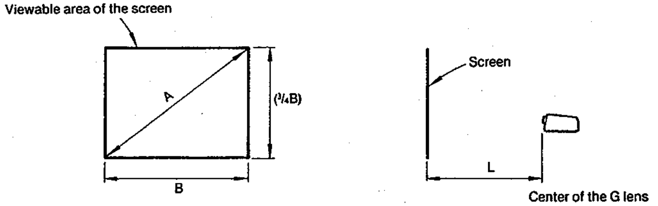

to AC IN
to a wall outlet
AC power cord
(supplied)
phono
4-pin, mini DIN
to LINE IN S VIDEO
LINE IN
S VIDEO
VIDEO
MONITOR OUT
AUDIO
VIDEO
RGB IN
G/SYNC
SYNC/HD
VD
TO VPR-722S
to MONITOR
OUT
BNC
phono
BNC
to audio output
to S VIDEO output
VCR equipped
with S VIDEO
connector
to R
to G/G SYNC
to B
to SYNC/HD
to LINE IN VIDEO
to LINE IN AUDIO
to video input
Color
monitor
Camera control unit
to RGB outputs
to SYNC output
Video camera
to audio output
to video output
e.g. Sony Betamax
video cassette
recorder
e.g. Sony U-matic
videocassette
recorder

1-6. INSTALLATION DIAGRAMS (2)

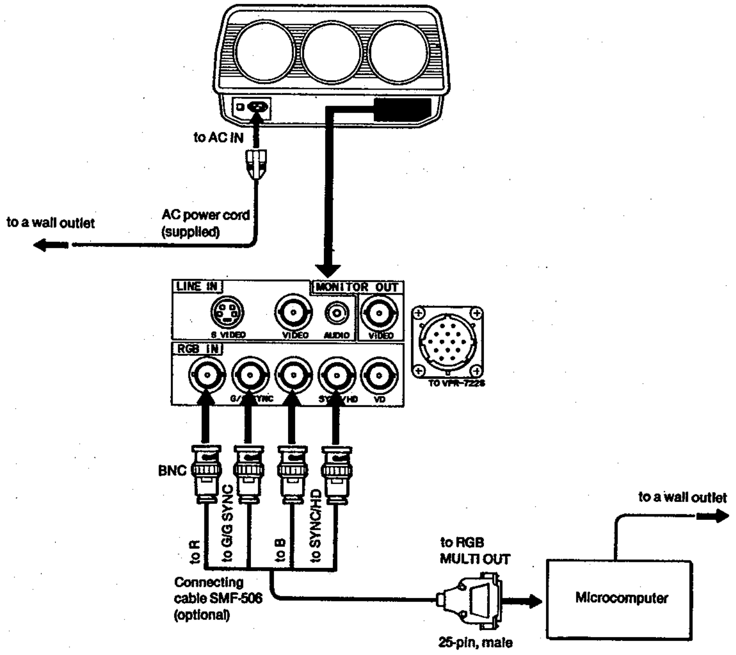
Type 13 and Type 14

100" - 250" projection
For a screen not described on page 10, use the following graph to decide the distance between the screen and projector (L).



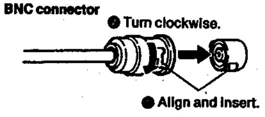

Viewable area of the screen
A
(¾B)
B
Screen
L
Center of the G lens

Connecting a Microcomputer


to AC IN
to a wall outlet
AC power cord
(supplied)
LINE IN
S VIDEO
VIDEO
MONITOR OUT
AUDIO
VIDEO
RGB IN
G/G SYNC
SYNC/HD
VD
TO VPR-722S
BNC
to R
to G/G SYNC
to B
to SYNC/HD
Connecting
cable SMF-506
(optional)
to RGB
MULTI OUT
25-pin, male
Microcomputer
to a wall outlet

Sync Signal Connection for RGB Inputs
The connection differs according to the sync signal to be used.

When a sync signal is input together with the green signal	Connection to the SYNC/HD and VD connectors is not necessary.
When using an external composite sync signal	Connect it to the SYNC/HD connector. (as illustrated above)
When using horizontal and vertical sync signals	Connect them to the SYNC/HD and VD connectors respectively.


BNC connector
❷ Turn clockwise.
● Align and insert.

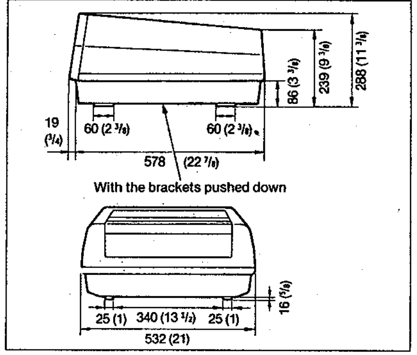
- If your microcomputer is equipped with a composite video output, connect it to the LINE IN VIDEO connector on the projector.

Note
Do not leave a still picture from a microcomputer or video disc player projected for more than one hour.

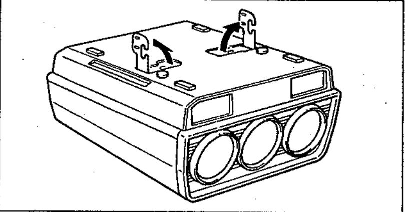
1-7. NOTES ON INSTALLATION

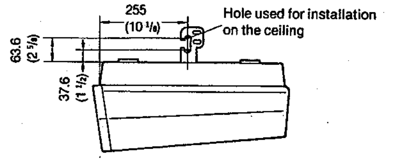
Projector's Dimensions

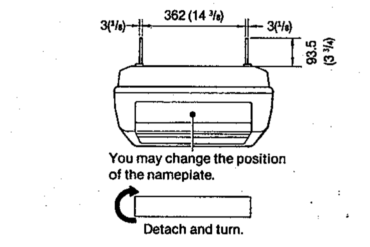
Unit: mm (inches)


19
(3/4)
60 (2 3/8)
60 (2 3/8)
578 (22 7/8)
86 (3 3/8)
239 (9 3/8)
288 (11 3/8)
With the brackets pushed down
16 (5/8)
25 (1)
340 (13 1/2)
25 (1)
532 (21)

Raise the brackets when installing the projector on the ceiling or floor.

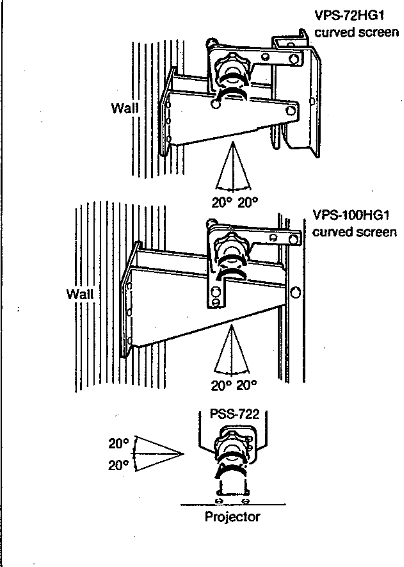



255
(10 1/8)
Hole used for installation on the ceiling
63.6
(2 5/8)
37.6
(1 1/2)

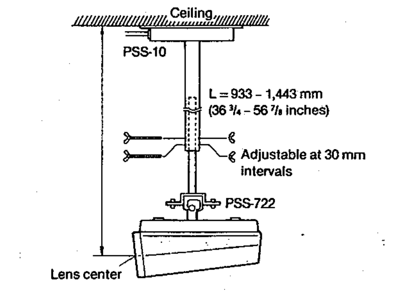

3(1/8)
362 (14 3/8)
3(1/8)
93.5
(3 3/4)
You may change the position of the nameplate.
Detach and turn.

To Adjust the Angle of the Screen/ Projector

Loosen the knobs, adjust the angle, then tighten the knobs down firmly.


VPS-72HG1
curved screen
Wall
20° 20°
VPS-100HG1
curved screen
Wall
20° 20°
PSS-722
20°
20°
Projector

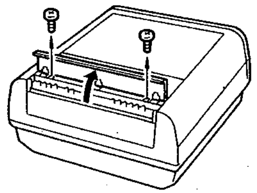
When the PSS-10 projector suspension support (optional) is used in combination with the PSS-722
The PSS-10 allows you to adjust the distance between the ceiling and the projector.


Ceiling
PSS-10
L = 933 - 1,443 mm
(36 3/4 - 56 7/8 inches)
Adjustable at 30 mm intervals
PSS-722
Lens center

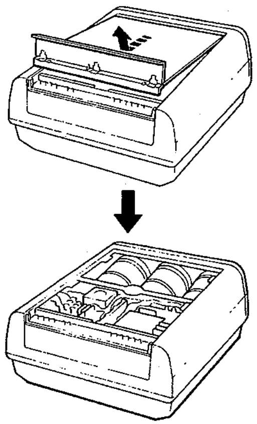
To Open the Top Panel

You will need a medium size Phillips head screwdriver.

1. Open the control panel cover.
2. Remove the two screws.



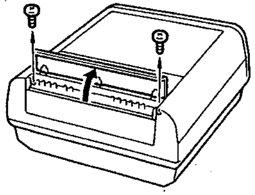
3. Pull the top panel slightly toward you and remove it.



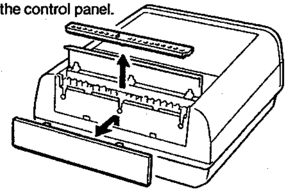
To Open the Cabinet

Open the cabinet when changing the voltage selector setting and when converting the unit for 200" projection.

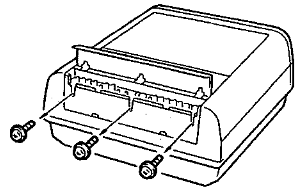
1. Open the control panel cover.
2. Remove the two screws on the control panel.



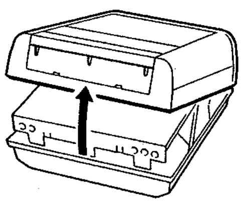
3. Slide the nameplate upward and pull it toward you to remove.
4. Remove the control panel.



5. Remove the three screws.



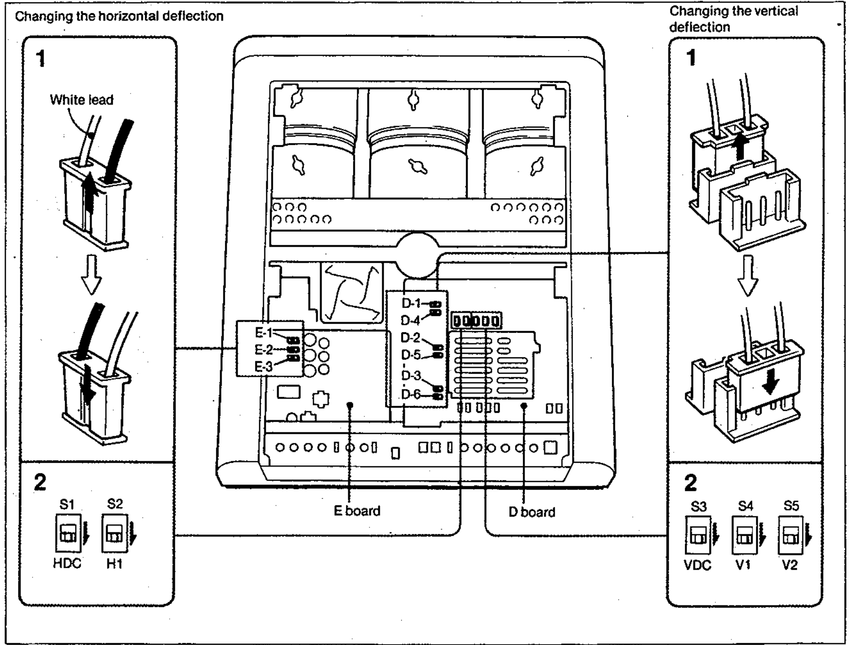
6. Raise the cabinet to remove.



1-8. POLARITY CHANGE

The projector is preadjusted at the factory for the front projection facing the screen, on desk or floor. When the projector is installed on the ceiling with the bracket side up or used for the rear projection, the polarity should be changed.
Horizontal and/or vertical deflection should be changed depending on the type of projection and installation location.

Projection type	Installation location	Type of installation	Horizontal deflection change	Vertical deflection change
Front projection	Ceiling	3 4 7 8 14	Necessary	Necessary
Rear projection	Desk, floor or level projection	9 11	Necessary	Unnecessary
	Ceiling or upturned level projection	10 12	Unnecessary	Necessary


Changing the horizontal deflection

Changing the vertical deflection

1
White lead
2
S1
S2
HDC
H1
E-1
E-2
E-3
D-1
D-4
D-2
D-5
D-3
D-6
E board
D board
1
2
S3
S4
S5
VDC
V1
V2

Preparations

- Make sure that power is not connected.
- Open the top panel.

To change the horizontal deflection

1 Reverse the polarity of connectors E-1, E-2 and E-3 on E board.
2 Set switches S1 and S2 on D board to the control panel side position.

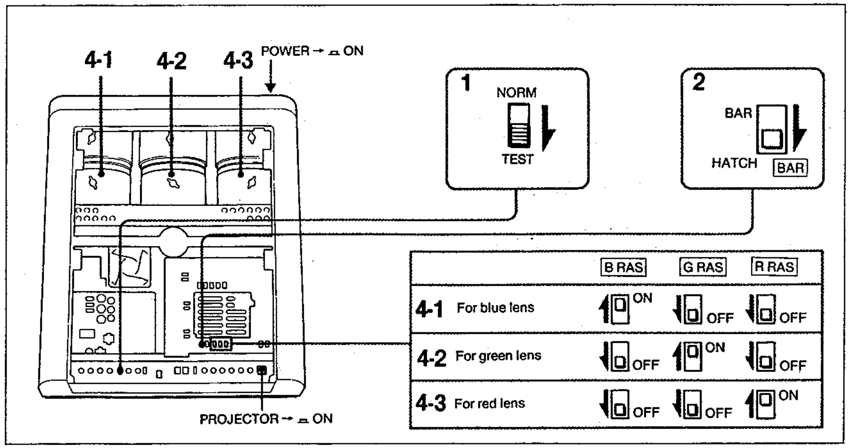
To change the vertical deflection

1 Move the connectors on D board from receptacles D-1, D-2 and D-3 to receptacles D-4, D-5 and D-6, respectively.
2 Set switches S3, S4 and S5 on D board to the control panel side position.

Note
Check that the connectors are inserted firmly, then proceed to lens focus adjustment with the projector's top panel removed.

1-9. LENS FOCUS ADJUSTMENT

The lens focus is preadjusted at the factory for 100" flat screen. For other type screens, the lens focus should be adjusted.


4-1
4-2
4-3
POWER → ⊥ ON
PROJECTOR → ⊥ ON
1
NORM
TEST
2
BAR
HATCH
BAR

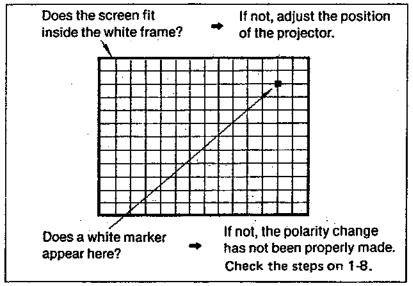
	B RAS	G RAS	R RAS
4-1 For blue lens	ON	OFF	OFF
4-2 For green lens	OFF	ON	OFF
4-3 For red lens	OFF	OFF	ON

Preparations

- Install the projector in the correct position on the floor or ceiling.
- Connect the supplied power cord to the AC IN socket and to an AC outlet, depress the POWER switch on the connector panel and the PROJECTOR switch.
The green POWER lamp will light.
- Open the top panel. (See page 12.)

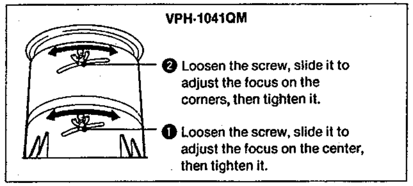
Adjustment

1 Set the NORM/TEST switch to TEST.
2 Set the BAR switch to HATCH.
3 A cross hatch pattern will be displayed. Check the following.

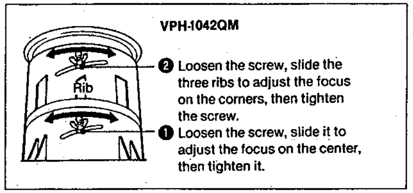

Does the screen fit inside the white frame?
→
If not, adjust the position of the projector.
Does a white marker appear here?
→
If not, the polarity change has not been properly made. Check the steps on 1-8.

4 Adjust the lens focus.
For adjusting each lens, first set the B RAS, G RAS and R RAS switches as illustrated above, then adjust the lens as illustrated below.

VPH-1041QM


❷ Loosen the screw, slide it to adjust the focus on the corners, then tighten it.
❶ Loosen the screw, slide it to adjust the focus on the center, then tighten it.

VPH-1042QM

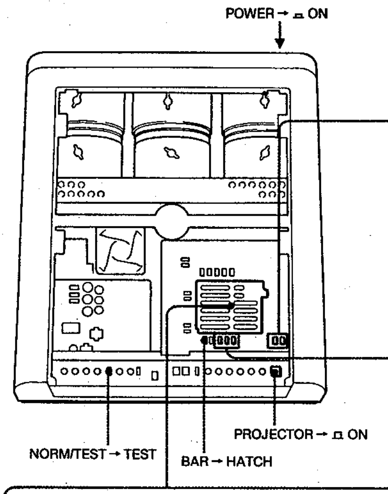


❷ Loosen the screw, slide the three ribs to adjust the focus on the corners, then tighten the screw.
❶ Loosen the screw, slide it to adjust the focus on the center, then tighten it.

Proceed to registration adjustment.

1-10. REGISTRATION ADJUSTMENT

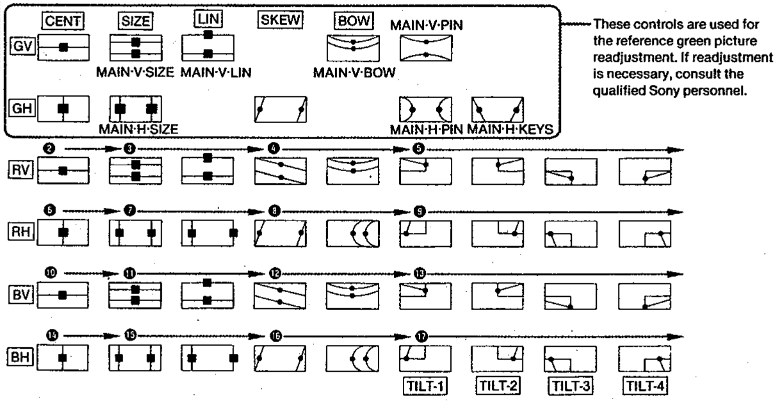
Use a small screwdriver to adjust the controls through the holes.



Screen size	MODEL SELECT	SIZE SELECT
72" (70" - 85")	100	150/72
100" (85" - 125")	100	NORMAL
150" (125" - 175")	200	150/72
200" (175" - 250")	200	NORMAL

For registration of:	B RAS	G RAS	R RAS
red and green	OFF	ON	ON
blue and green	ON	ON	OFF

Controls for registration adjustment
The circled numbers refer to the sequence of adjustment.



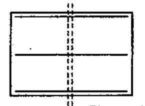
These controls are used for the reference green picture readjustment. If readjustment is necessary, consult the qualified Sony personnel.

Preparations

- Keep the G RAS switch at ON and set the B RAS and R RAS switches to OFF. A green cross hatch pattern will be displayed.
- Check the position of the projector, polarity and lens focus referring to page 15.
- Set the MODEL SELECT and SIZE SELECT switches according to the screen size.
  Set the MODEL SELECT switch to 100 for 70"– 125" projection, and to 200 for 125"– 250" projection.
  Set the SIZE SELECT switch to NORMAL for 85"– 125" and 175"– 250" projection, and to 150/72 for 70"– 85" and 125"– 175" projection.

Vertical registration of the red and green pictures

❶ Set the B RAS switch to OFF and the G RAS and R RAS switches to ON.
❷ Adjust the RV CENT control so that the red horizontal lines and the green horizontal lines converge in the middle of the screen.
❸ Adjust the RV SIZE control (and the RV LIN control, if necessary) so that the red horizontal lines and the green horizontal lines coverge at the upper and lower sides of the screen.



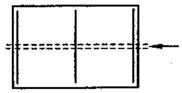
Observe the horizontal lines in this part.

(Repeat steps ❷ and ❸ as necessary.)

❹ Adjust the RV SKEW and RV BOW controls if the red horizontal lines and the green horizontal lines do not converge in the middle of the screen.
❺ Adjust the RV TILT-1 through TILT-4 controls so that the red horizontal lines and the green horizontal lines converge in the corners of the screen.

Horizontal registration of the red and green pictures

❻ Adjust the RH CENT control so that the red vertical lines and the green vertical lines converge in the middle of the screen.
❼ Adjust the RH SIZE control (and the RH LIN control, if necessary) so that the red vertical lines and the green vertical lines converge at the right and left sides of the screen.



Observe the vertical lines in this part.

(Repeat steps ❻ and ❼ as necessary.)

❽ Adjust the RH SKEW and RH BOW controls so that the red vertical lines and the green vertical lines converge in the middle of the screen.
❾ Adjust the RH TILT-1 through TILT-4 controls so that the red vertical lines and the green vertical lines converge at the corners of the screen.

Proceed to the following adjustments in the same manner as with red and green registration, setting the R RAS switch to OFF and the B RAS and G RAS switches to ON.

Vertical registration of the blue and green pictures

❿ Adjust the BV CENT control.
⓫ Adjust the BV SIZE control, and BV LIN if necessary.
⓬ Adjust the BV SKEW and BV BOW controls, if necessary.
⓭ Adjust the TILT-1 through TILT-4 controls.

Horizontal registration of the blue and green pictures

⓮ Adjust the BH CENT control.
⓯ Adjust the BH SIZE control, and BH LIN if necessary.
⓰ Adjust the BH SKEW and BH BOW controls.
⓱ Adjust the BH TILT-1 through TILT-4 controls.

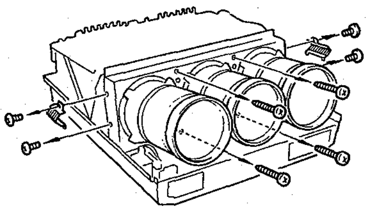
When registration is complete
Set the switches to the following positions.
R, G, B RAS switches →ON position
BAR switch →BAR
NORM/TEST switch →NORM

Replace the top panel.

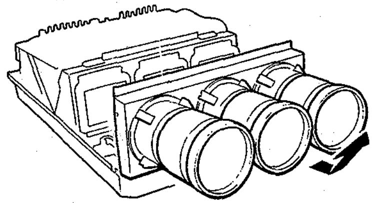
1-11. CONVERSION FOR 200" (150" – 250") PROJECTION

1 Separate the lens block from the main body.

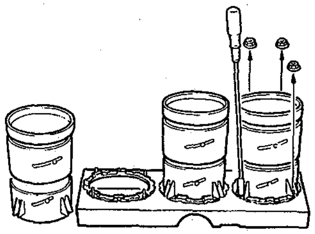
① Open the cabinet. (See page 12.)
② Remove the 4 screws from the sides of the projector.
③ Remove the 4 screws from the lens base.



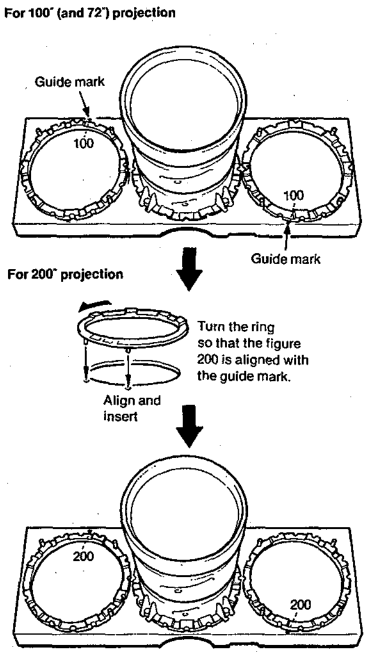
④ Pull the lens block out.



⑤ Remove the 4 nuts and detach the red and blue lenses from the lens base.
Use an 8 mm nutdriver.



2 Change the positions of the lens rings.


For 100" (and 72") projection
Guide mark
100
100
Guide mark
For 200" projection
Turn the ring so that the figure 200 is aligned with the guide mark.
Align and insert
200
200

3 Adjust the mounting angles of the CRTs.

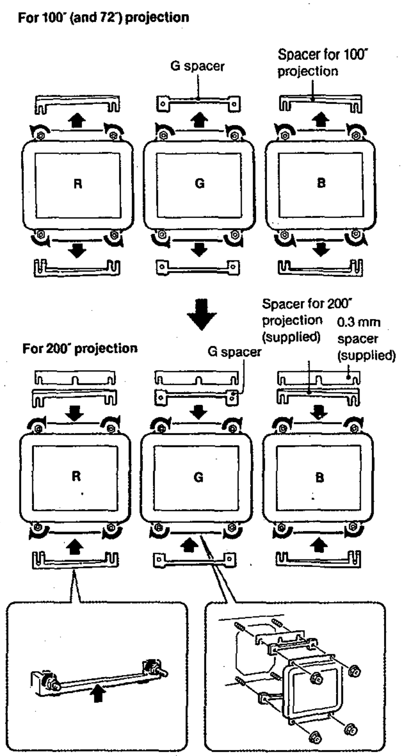
Use an 8 mm nutdriver.

① Loosen the nuts and remove all the spacers from the top and bottom of each lens.

② Insert the supplied spacers for 200" projection, 0.3 mm spacers and G spacers as follows:
R and B lenses: A spacer for 200" and a 0.3 mm spacer for the top; a spacer for 200" for the bottom
G lens: A G spacer removed in step ① and a 0.3 mm spacer for the top; a G spacer removed in step ① for the bottom
Insert the spacers for 200" with the thinner end toward the center CRT.

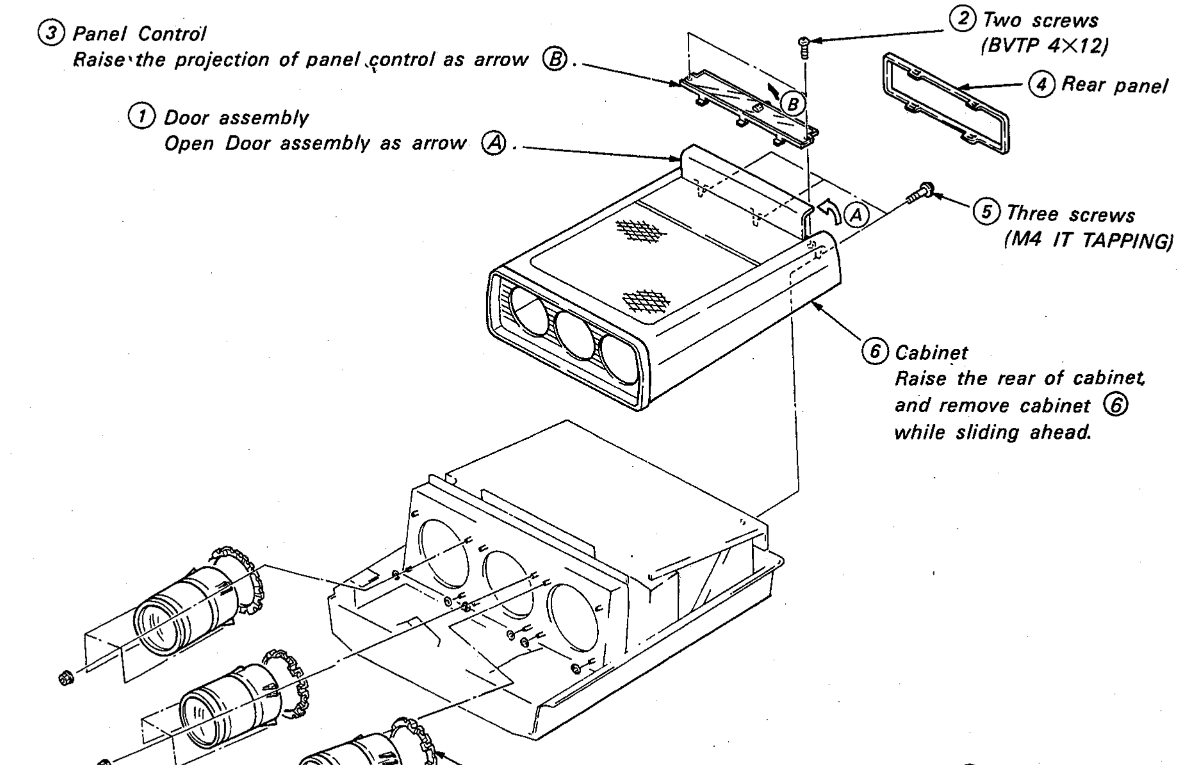
③ Tighten, all the nuts completely for accurate angles of the lenses.

After adjsutment is complete, replace the lens block in the main body and close the cabinet.
(Reverse the steps given in section 1.)

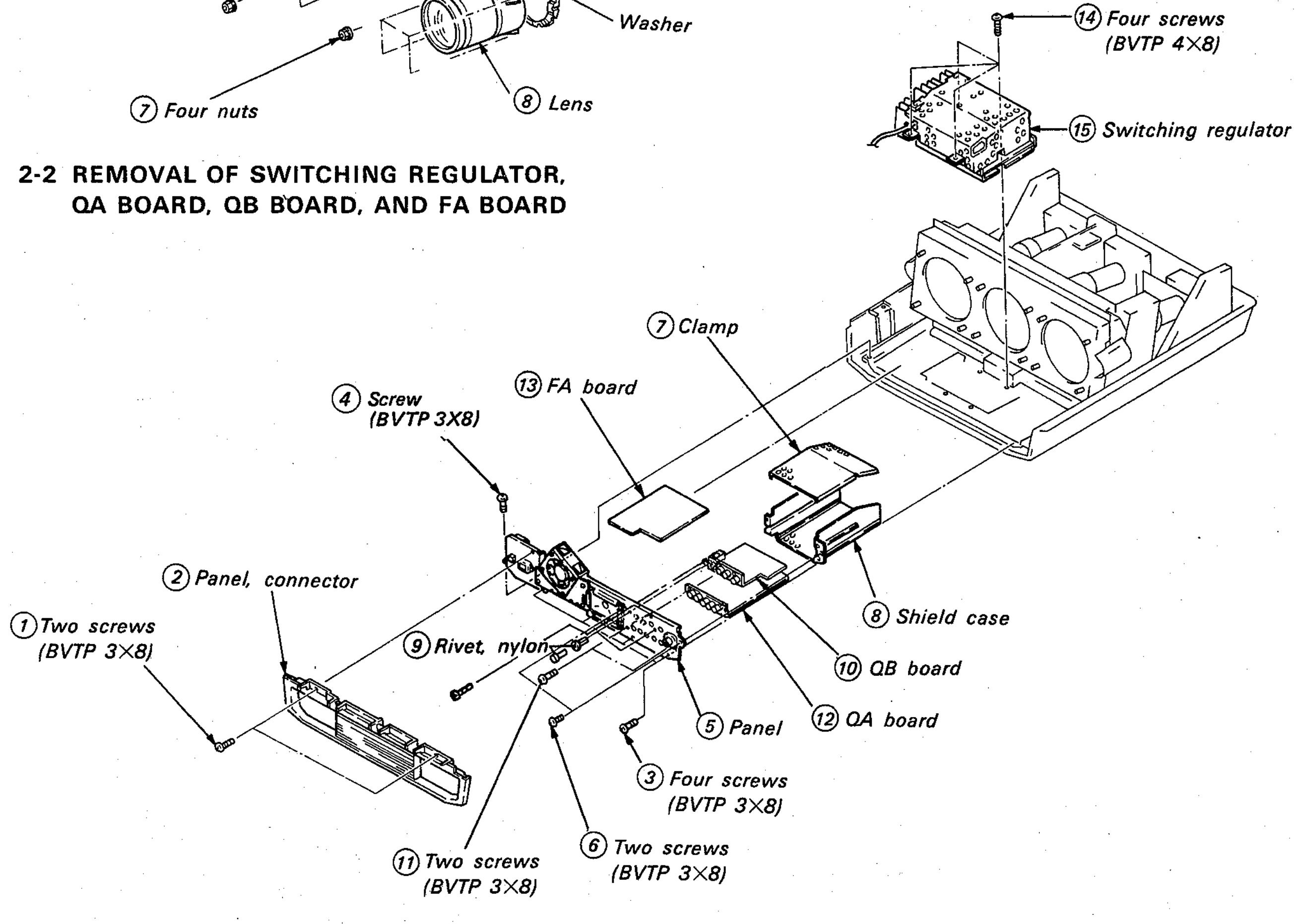

For 100" (and 72") projection
G spacer
Spacer for 100" projection
R
G
B
Spacer for 200" projection (supplied)
0.3 mm spacer (supplied)
For 200" projection
G spacer
R
G
B

SECTION 2
DISASSEMBLY

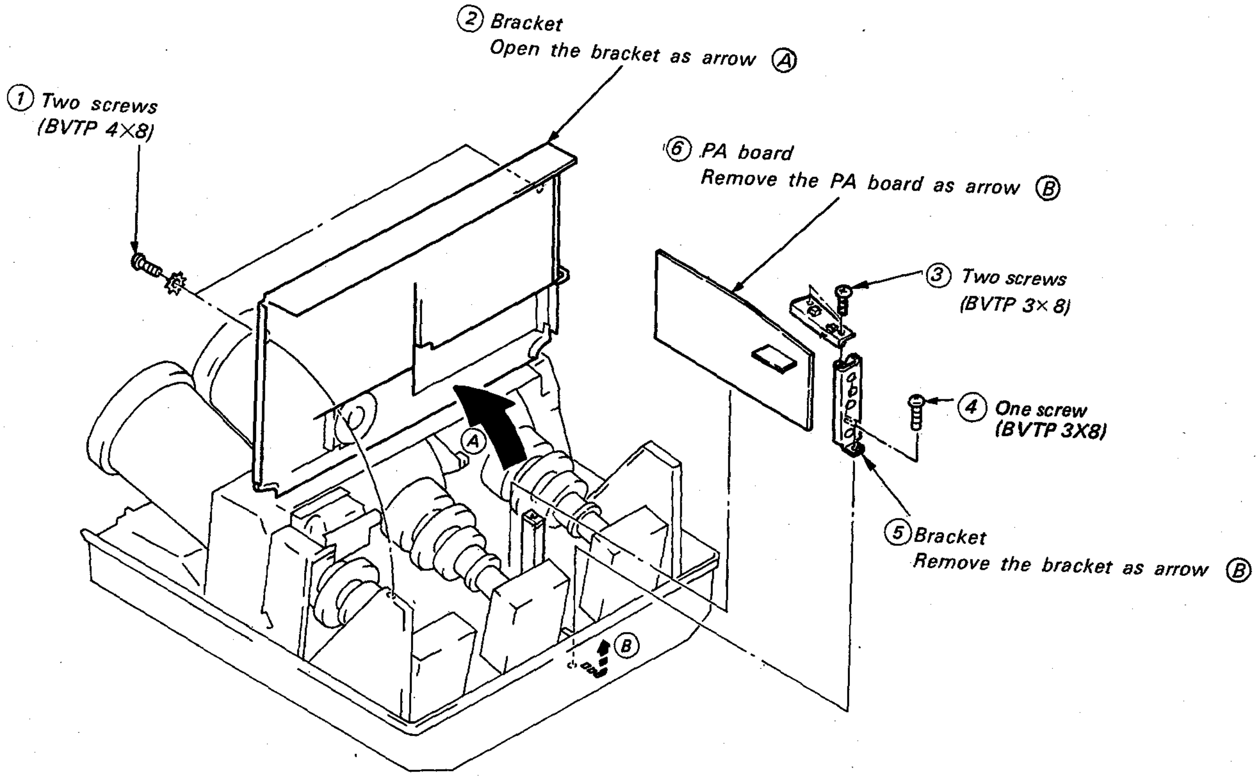
2-1. REMOVAL OF CABINET AND LENS


③ Panel Control
Raise the projection of panel control as arrow Ⓑ.
① Door assembly
Open Door assembly as arrow Ⓐ.
② Two screws (BVTP 4×12)
④ Rear panel
⑤ Three screws (M4 IT TAPPING)
⑥ Cabinet
Raise the rear of cabinet and remove cabinet ⑥ while sliding ahead.
Ⓐ
Ⓑ
Washer
⑦ Four nuts
⑧ Lens

2-2 REMOVAL OF SWITCHING REGULATOR, QA BOARD, QB BOARD, AND FA BOARD


⑭ Four screws (BVTP 4×8)
⑮ Switching regulator
⑦ Clamp
⑬ FA board
④ Screw (BVTP 3X8)
② Panel, connector
① Two screws (BVTP 3×8)
⑨ Rivet, nylon
⑧ Shield case
⑩ QB board
⑤ Panel
⑫ QA board
③ Four screws (BVTP 3×8)
⑪ Two screws (BVTP 3×8)
⑥ Two screws (BVTP 3×8)

2-3 REMOVAL OF PA BOARD



① *Two screws*
(BVTP 4×8)

② *Bracket*
Open the bracket as arrow Ⓐ

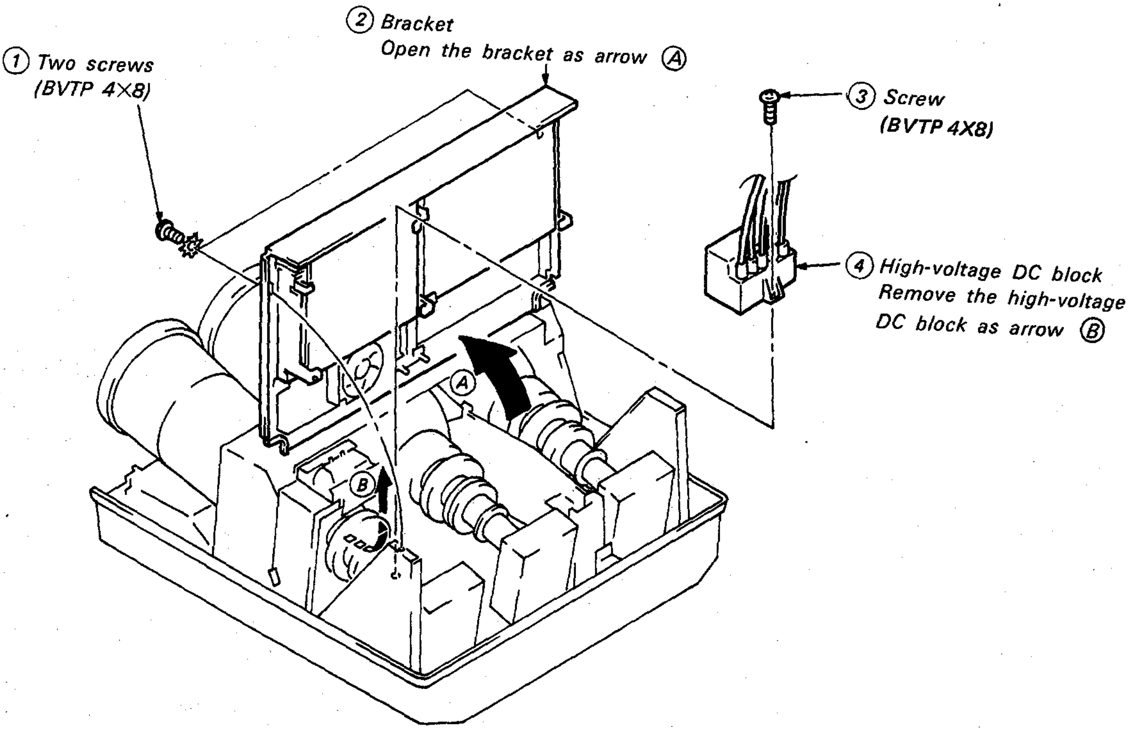
③ *Two screws*
(BVTP 3×8)

④ *One screw*
(BVTP 3X8)

⑤ *Bracket*
Remove the bracket as arrow Ⓑ

⑥ *PA board*
Remove the PA board as arrow Ⓑ

2-4 REMOVAL OF HIGH-VOLTAGE DC BLOCK



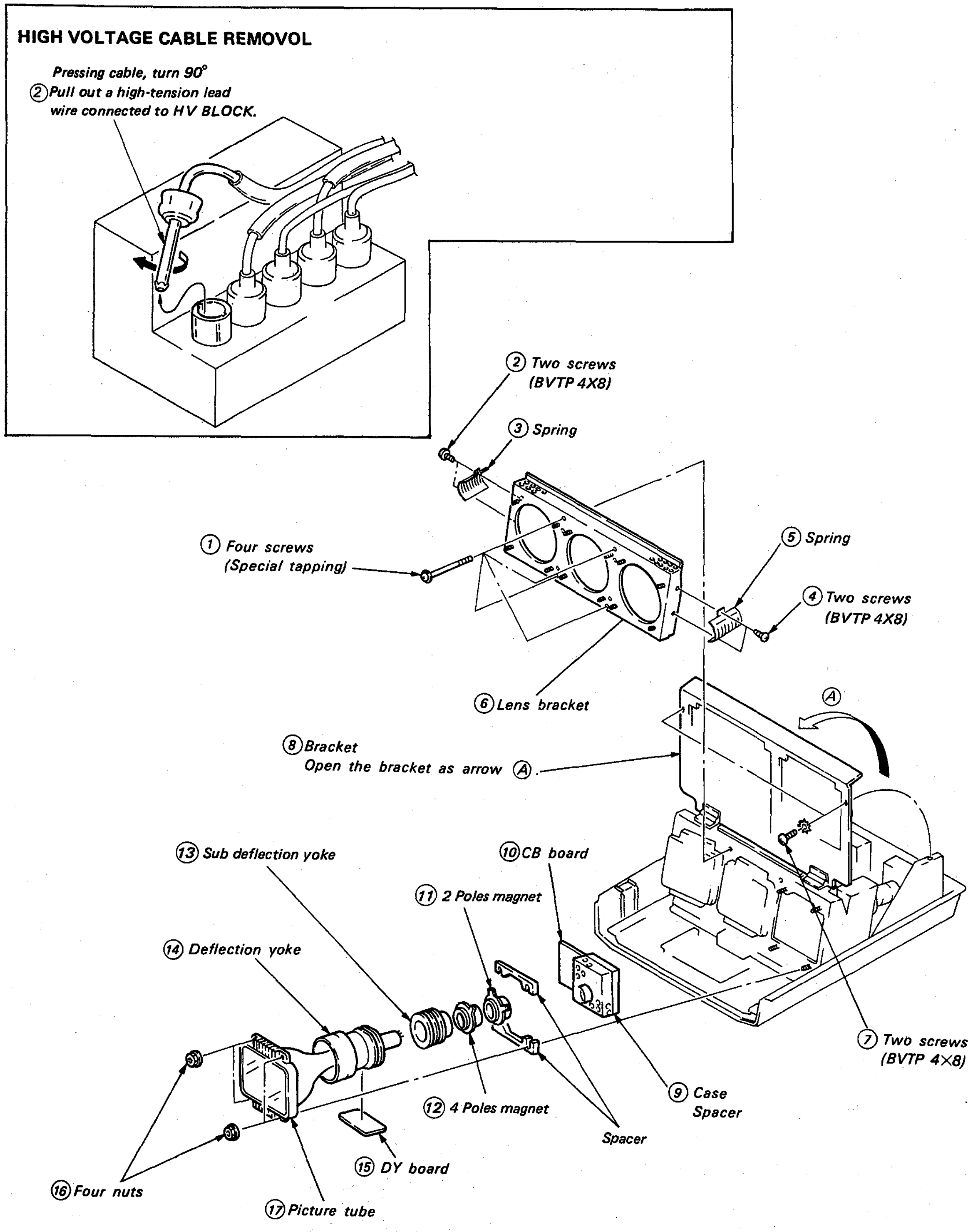
① *Two screws*
(BVTP 4×8)

② *Bracket*
Open the bracket as arrow Ⓐ

③ *Screw*
(BVTP 4X8)

④ *High-voltage DC block*
Remove the high-voltage DC block as arrow Ⓑ

2-5 REMOVAL OF PICTURE TUBE


HIGH VOLTAGE CABLE REMOVOL
Pressing cable, turn 90°
② Pull out a high-tension lead wire connected to H V BLOCK.
② Two screws (BVTP 4X8)
③ Spring
① Four screws (Special tapping)
⑤ Spring
④ Two screws (BVTP 4X8)
⑥ Lens bracket
Ⓐ
⑧ Bracket
Open the bracket as arrow Ⓐ.
⑬ Sub deflection yoke
⑩ CB board
⑪ 2 Poles magnet
⑭ Deflection yoke
⑦ Two screws (BVTP 4X8)
⑨ Case
Spacer
⑫ 4 Poles magnet
Spacer
⑮ DY board
⑯ Four nuts
⑰ Picture tube

SECTION 3
CIRCUIT DESCRIPTIONS

3-1. HV REGULATION CIRCUIT

Outline

Basic operation of the circuit is amplification of the high voltage output.

Corresponding to power-up of HV components, design of high efficiency circuit is adopted in the HV regulator section. With employing B+ chopper type HV regulator, the circuit efficiency was raised approx. 8% compared with conventional series-regulation circuit.

In result, as the efficiency of HV circuit, reducing 15 watts of power consumption was obtained.

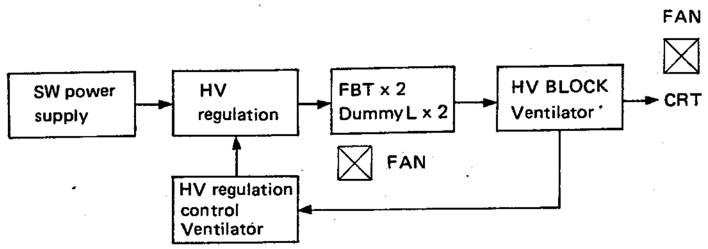
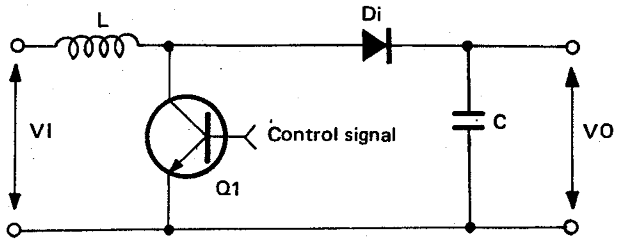

SW power supply
HV regulation
FBT x 2
Dummy L x 2
HV BLOCK
Ventilator
FAN
CRT
FAN
HV regulation control Ventilator

Fig. 1

3-1-1. HV REGULATION SECTION


L
Di
VI
Control signal
Q1
C
VO

$$VO = \frac{T\,ON + T\,OFF}{T\,OFF} \times VI$$

Fig. 2

Basic circuit is a voltage-boost type switching regulation circuit as shown in Fig. 2.

Energy stored in L during Q1 is ON, is added to the power supply input to deliver to the load during Q1 is OFF.

HV regulation is operated by controlling ON-period of Q1.

3-1-2. HV REGULATION CONTROL SECTION

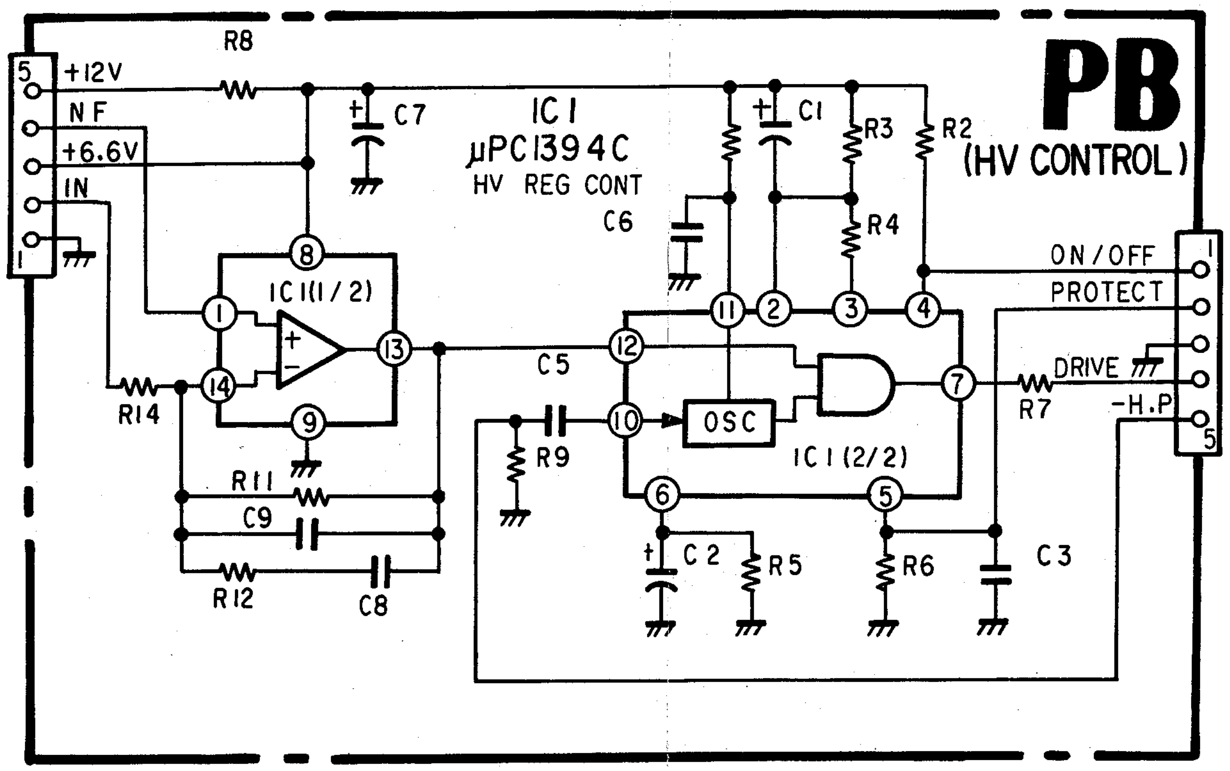

PB
(HV CONTROL)
+12V
NF
+6.6V
IN
R8
C7
IC1
μPC1394C
HV REG CONT
C6
C1
R3
R2
R4
IC1(1/2)
C5
OSC
IC1(2/2)
R14
R11
C9
R12
C8
R9
C2
R5
R6
C3
R7
ON/OFF
PROTECT
DRIVE
-H.P

Fig. 3

Detected voltage from HV regulator is applied to pin ① of IC1 (μPC1394C), and reference voltage is input to pin ⑭.

If voltage of pin ① is lowered than that of pin ⑭ (decrease of HV), voltage of pin ⑬ is decreased. The output of pin ⑬ and sawtooth generated by pins ⑩ and ⑪ are voltage compared, and an output having pulse width corresponding to the voltage is delivered from pin ⑦.

In this case, the pulse width at pin ⑦ is widened. Pin ⑤ and ⑥ are cut-off circuit section which locks voltage of pin ⑦ in high level in case trouble is occurred in load.

Maximum duty time (period of ON) of output transistor is decided in pin ②.

SECTION 4
SET-UP ADJUSTMENT

4-1. BASIC ADJUSTMENTS

Basic Adjustments
<Registration>

1) Degauss the entire chassis.
2) Set the variable resistor on the D board to mechanical center. Also, set the D board H CENT and V CENT to mechanical center.
3) Adjust the knobs and switches on the set as follows
BRIGHT: fully clockwise (maximum)
PICTURE: maximum

4-2. GREEN FOCUS Adjustment

1) Receive a monoscope signal.
2) Cover the RED and BLUE lenses.
3) Set the GREEN lens SUB lens fully forward.
4) Rotate the MAIN lens and set for optimum focus on the screen.
5) Turn the GREEN focus VR on the focus pack and set for optimum conditions.
6) Rotate the MAIN lens for best focus in the center of the screen and temporarily tighten the lens screw.
7) Rotate the SUB lens for best focus in the center of the screen and tighten the lens screw.
8) Loosen the MAIN lens screw, fine adjust the focus, then tighten the MAIN lens screw.
9) Input a dot pattern.
10) Turn GREEN FOCUS VR (FOCUS PACK) slightly to clockwise so that focus will be off side.
11) Observe the center of screen and if dots are crooked spot, adjust the above 4 Poles magnet (see page 18) for the round spot as Fig. 1-3.
12) Adjust GREEN FOCUS VR (FOCUS PACK) to the best focus.
13) Turn GREEN FOCUS VR (FOCUS PACK) slightly counterclockwise so as to make out of focus a little bit.
14) Adjust the luminous point to be the center of the dot by 2 Poles magnet (see page 18) as Fig. 1-4.
15) Confirm the items 11) and 14) by turning GREEN FOCUS VR (FOCUS PACK) clockwise and counterclockwise centering around the best point. When the dot moves, adjust the tracking by repeating items 10) to 14).
16) Set GREEN FOCUS VR (FOCUS PACK) to the best point.

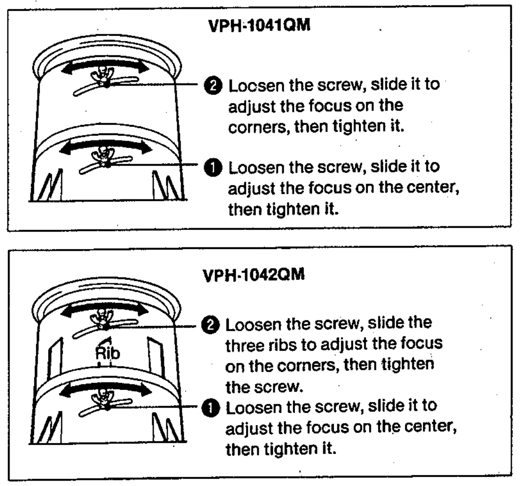

VPH-1041QM
❷ Loosen the screw, slide it to adjust the focus on the corners, then tighten it.
❶ Loosen the screw, slide it to adjust the focus on the center, then tighten it.
VPH-1042QM
Rib
❷ Loosen the screw, slide the three ribs to adjust the focus on the corners, then tighten the screw.
❶ Loosen the screw, slide it to adjust the focus on the center, then tighten it.

Figure 1-1

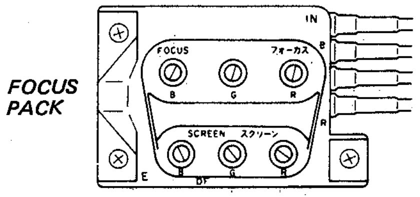

FOCUS PACK
IN
FOCUS
フォーカス
B
G
R
SCREEN
スクリーン
E
DF

Figure 1-2

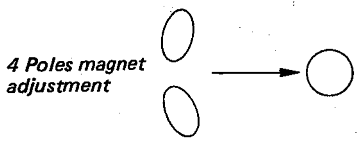

4 Poles magnet adjustment

Figure 1-3

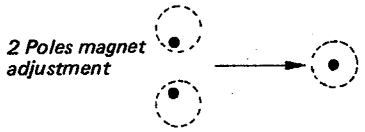

2 Poles magnet adjustment

Figure 1-4

4-3. RED FOCUS Adjustment

1) Remove the RED lens cover and cover the GREEN and BLUE lenses.
2) Adjust in the same way as for GREEN FOCUS adjustment, steps 3) to 16).

4-4. BLUE FOCUS Adjustment

1) Remove the BLUE lens cover and cover the RED lens.
2) Adjust the same as GREEN FOCUS Adjustment items 2) to 16).
3) Receive the monoscope signal.
4) Turn BLUE VR slightly clockwise to make the upper one grid dark equally.

CAUTION FOR ADJUSTMENT
WHEN YOU PERFORM SET UP ADJUSTMENT, ELECTRIC ADJUSTMENT, AND ADJUSTMENT FOR REPLACED PICTURE TUBE, YOU SHOULD NOT KEEP ANY CLEARANCE BETWEEN PICTURE TUBE AND DY (DEFLECTION YOKE).

4-5. GREEN Picture Adjustment

1) Input a PAL monoscope signal.
2) Loosen the DY screw and adjust so that the center monoscope line is parallel to those at the left and right, then temporarily tighten the screw.
3) Loosen the SUB DY screw and adjust so that the signal moves parallel, to the left and right, when the D board GREEN H.CENT VR (RV10) is moved, then temporarily tighten the screw.
4) Adjust D board GREEN H.CENT VR (RV10) and GREEN V.CENT VR (RV5) so that the center of the monoscope signal is lined up to the screen center mark.

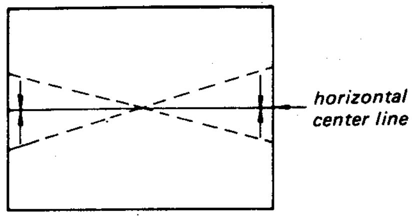

horizontal center line

Figure 2

5) Tighten the screws after positioning the DY and SUB DY correctly.
6) Adjust D board MAIN H.SIZE VR (RV11) GREEN V.SIZE VR (RV6) and GREEN V.LIN (RV7) and perform rough size adjustment.

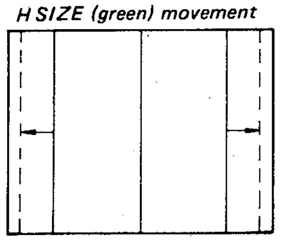

H SIZE (green) movement

Figure 3

7) Adjust D board MIAN V.PIN VR (RV9) so that the lines at the top and bottom of the signal are almost parallel with the screen.

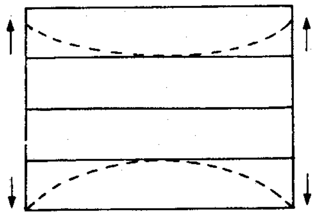


Figure 4

8) Receive an NTSC monoscope signal.
9) Adjust D board GREEN V.BOW (RV8) so that the monoscope signal horizontal center line is parallel with the screen horizontal center line, then adjust GREEN V.CENT VR (RV5) again to match up to the center line.

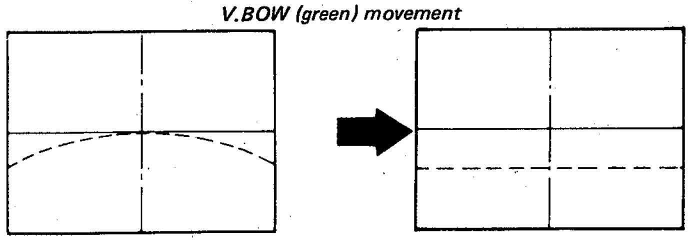

V.BOW (green) movement

Figure 5

10) Receive a PAL monoscope signal.
11) Adjust D board GREEN V.LIN (RV7) so that the number of grids at the top and bottom of the signal are the same.

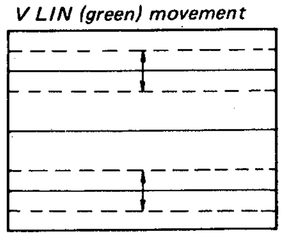

V LIN (green) movement

Figure 6

12) Adjust D board GREEN V.SIZE (RV6) so that there are about 11.0 grids at the top and bottom of the monoscope signal.

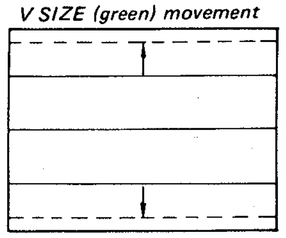

V SIZE (green) movement

Figure 7

13) Adjust D board MAIN V.PIN (RV9) so that the top and bottom monoscope signal lines are parallel with the screen frame.
When the horizontal center line moves on turning RV9 from 0 to 100%, adjust again with PIN CENT (RV4) so as to fix the horizontal center line.
14) Line up the monoscope signal center vertical line to the screen center vertical line by adjusting D board GREEN H.SKEW (RV13) and GREEN H.CENT (RV10).

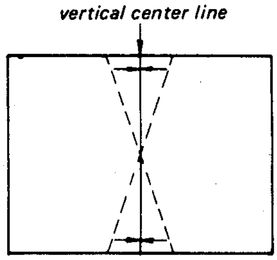


Figure 8

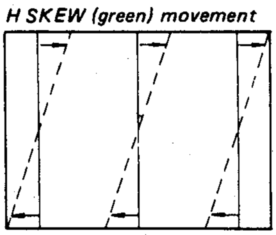


Figure 9

15) Adjust D board MAIN H.KES (RV15) and MAIN H.PIN (RV14) so that the monoscope signal left and right vertical lines are parallel with the screen.
16) Adjust D board MAIN H.SIZE (RV11) so that the number of grids to the left and right of the monoscope signal center vertical line is about 7.4 on each side.

4-6. RED DY Adjustment

1) Turn D board blue RAS SW (S10) off and project green and red.
2) Adjust D board RED V.CENT (RV16), RED V.LIN (RV18), RED H.CENT (RV25) and RED H.LIN (RV27) to line up the red and green monoscope centers.

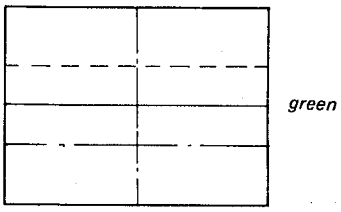


Figure 10

3) Loosen the RED DY screw.
4) Set NOR/TEST SW (S451) on the HA board to TEST, HATCH SW (S8) on the D board to HATCH.
5) Adjust D board RED V.BOW (RV20) so that the horizontal center line is straight.

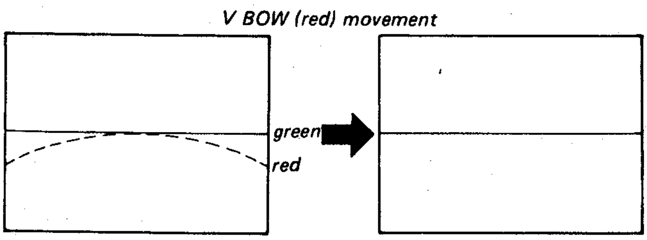


Figure 11

6) Rotate the RED DY until the horizontal center line is parallel with green, then tighten the screw.
7) Loosen the SUB DY screw, rotate the DY, and adjust so that the hatch moves parallel to the right and left, when the D board RED H.CENT VR (RV25) is moved, then tighten the screw.

4-7. TILT Adjustment

1) Set NOR/TEST SW (S451) on the HA board to TEST, HATCH SW (S8) on the D board to HATCH.
2) Line up the red horizontal center line center with the center of the green horizontal center line by adjusting D board RED V.CENT (RV16), RED V.BOW (RV20) and RED V.SKEW (RV19).
3) Line up the red top and bottom horizontal lines with the green top and bottom horizontal lines by adjusting D board RED V.SIZE (RV17) RED V.LIN (RV18) and RED V.SKEW (RV19).
4) Set the RED V.TILT VR's 1-4 as shown below.

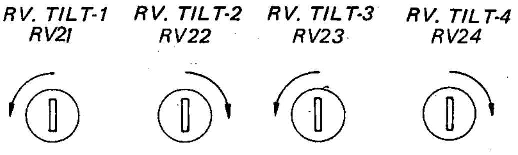


Figure 12

5) Set HA board NOR/TEST SW (S451) to NORMAL.
6) Receive an all-white signal.
7) Check that the red or green luminescent line can not be seen on the screen horizontal center line.
   If it is visible, adjust D board KEYS CENT VR (RV3) until it disappears.
8) Set the RED V.TILT VR's 1-4 to mechanical center.
9) Set NOR/TEST SW (S451) on the HA board to TEST, HATCH SW (S8) on the D board to HATCH.
10) Adjust RED and BLUE V.SKEW (RV19, RV37) until the top and bottom horizontal green and red lines match (minimum distortion balanced evenly at all four corners).

4-8. G-R H. REGISTRATION Adjustment

1) Adjust D board RED H.BOW (RV29) so that the RED vertical center line is straight.

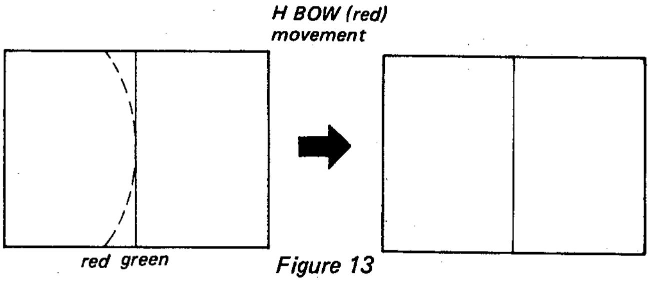


Figure 13

2) Adjust D board RED H.SKEW (RV28) so that the RED vertical center line is parallel to the green vertical center line.

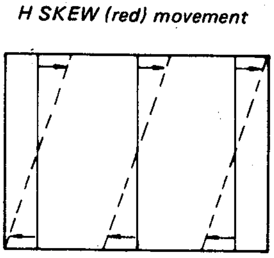


Figure 14

3) Adjust D board RED H.CENT (RV25) so that the RED and GREEN vertical center lines match up.

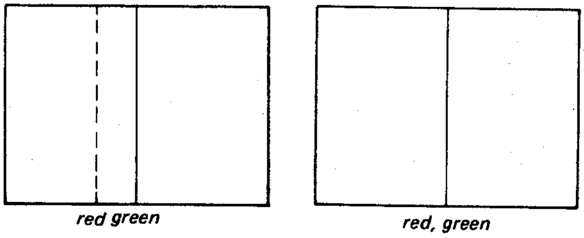
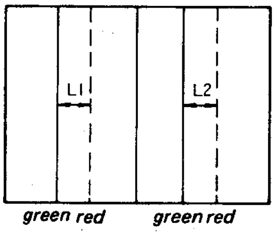


Figure 15

4) Adjust E board RED H.SIZE (L6) and D board RED H.LIN (RV27) so that the centers of the RED left and right vertical lines match up to the centers of the green left and right vertical lines.



(1) Adjust L6 (H SIZE (R)) on E board so that the red and green vertical lines overlap at the left and right sides on the screen, or so that L1 and L2 are the same distances, and adjust RV27 (RED H LIN) so that the red and green vertical lines overlap at the left and right sides of the screen.

Note: Make the RV26 (H.SIZE) and RV44 (BLUE H.SIZE) to the mechanical center. Don't turn these volumes except for the actual installation.

Figure 16

4-9. G-R TILT Adjustment

1) Set D board HATCH SW (S8) to HATCH.
2) Adjust D board RED V.TILT-1 (RV21) and line up the RED upper left horizontal line to green.
3) Adjust D board RED V.TILT-2 (RV22) and line up the RED upper right horizontal line to green.
4) Adjust D board RED V.TILT-3 (RV23) and line up the RED lower left horizontal line to green.
5) Adjust D board RED V.TILT-4 (RV24) and line up the RED lower right horizontal line to green.
6) Adjust D board RED H.TILT-1 (RV30) and line up the RED upper left vertical line to green.
7) Adjust D board RED H.TILT-2 (RV31) and line up the RED upper right vertical line to green.
8) Adjust D board RED H.TILT-3 (RV32) and line up the RED lower left vertical line to green.
9) Adjust D board RED H.TILT-4 (RV33) and line up the RED lower right vertical line to green.

4-10. BLUE DY Adjustment

1) Set the HA board NOR/TEST SW (S451) to NORMAL and receive a monoscope signal.
2) Turn the D board RED RAS SW (S12) off and turn the BLUE RAS SW (S10) on.
3) Line up the BLUE monoscope signal center to green center by adjusting D board BLUE V.CENT (RV34), BLUE V.LIN (RV36), BLUE H.CENT (RV43) and BLUE H.LIN (RV45).
4) Loosen BLUE DY screw.
5) Set D board HATCH SW (S8) to HATCH.
6) Adjust D board BLUE V.BOW (RV38) so that the center horizontal line is straight.
7) Adjust BLUE DY so that the horizontal center line is parallel to green, then tighten the DY screw.
8) Loosen the SUB DY screw and rotate to adjust so that the hatch moves parallel to the left and right when D board BLUE H.CENT VR (RV43) is moved, then tighten the screw.

4-11. G-B V. REGISTRATION Adjustment

1) Line up the blue horizontal center line to the green horizontal center line by adjusting D board BLUE V.CENT (RV34), BLUE V.BOW (RV38) and BLUE V.SKEW (RV37).
2) Adjust D board BLUE V.SIZE (RV35) and BLUE V.LIN (RV36) so that the centers of the blue top and bottom horizontal lines match up to the centers of the green top and bottom horizontal lines.

4-12. G-B H. REGISTRATION Adjustment

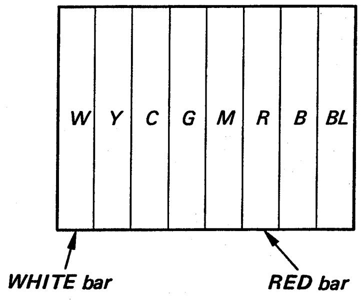
1) Adjust D board BLUE H.BOW (RV47) so that the blue vertical center line is straight.
2) Adjust D board BLUE H.SKEW (RV46) so that the blue vertical center line is parallel to the green vertical center line.
3) Adjust D board BLUE H.CENT (RV43) so that the blue vertical center line matches up to the green vertical center line.
4) Adjust E board BLUE H.SIZE (L8) and D board BLUE H.LIN (RV45) so that the centers of left and right blue vertical lines match up to the centers of the green left and right vertical lines.

4-13. G-B TILT Adjustment

1) Line up the top left BLUE horizontal line to green by adjusting D board BLUE V.TILT-1 (RV39).
2) Line up top right BLUE horizontal line to green by adjusting D board BLUE V.TILT-2 (RV40).
3) Line up bottom left BLUE horizontal line to green by adjusting D board BLUE V.TILT-3 (RV41).
4) Line up bottom right BLUE horizontal line to green by adjusting D board BLUE V.TILT-4 (RV42).
5) Line up top left BLUE vertical line to green by adjuting D board BLUE H.TILT-1 (RV48).
6) Line up to right BLUE vertical line to green with D board BLUE H.TILT-2 (RV49).
7) Line up bottom left BLUE vertical line to green with D board BLUE H.TILT-3 (RV50).
8) Line up bottom right BLUE vertical line to green with D board BLUE H.TILT-4 (RV51).

4-14. White Balance Adjustment

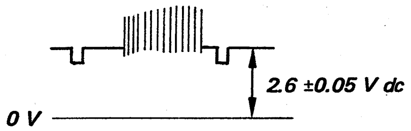
1) Receive the color bar signal from the pattern generator, and make the black and white screen by putting off the chroma off switch on the pattern generator.
2) ● R. DRIVE VR 80%
   ● G. DRIVE VR ...... MAX
   ● B. DRIVE VR ...... MAX
3) Turn the focus pack RED, GREEN and BLUE G2 (SCREEN) VR to minimum.
4) ● PICTURE VR....... MIN
   ● BRIGHTNESS VR ... mechanical center
5) Adjust the focus pack GREEN G2 (SCREEN) VR so that RED bar is bright dimly,
6) Set the BRIGHTNESS VR to minimum.
7) Adjust the white balance with the RED and BLUE G2 (SCREEN) VR.
   * Adjust WHITE bar position
8) Set the PICTURE VR and BRIGHTNESS VR to maximum.
9) Adjust the white balance by turning the RED DRIVE VR on the BB board.
   * Adjust WHITE bar position



10) Repeat items 3) to 9) when the white is not balanced.

4-15. SUB-BRIGHT Adjustment

1) Receive the cross hatch signal from the pattern generator.
2) Make the BRIGHT VR to the mechanical center.
3) Connect an oscilloscope to TP8 on BB board. (GND: Shield case.)
4) Adjust with RV4 (SUB BRIGHT) so that the black dc level becomes 2.6 ±0.05 V dc.



SECTION 5
SAFETY RELATED ADJUSTMENTS

5-1. PA AND PC BOARD ADJUSTMENTS

- *When replacing the following components, make the HV HOLD DOWN adjustment. (☒ R38, R39)*
  PA board complete
  R15, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, C30, D16, D22, Q10, IC2 } *PA board*
- *When replacing the following components, make the HV REG adjustment. (☒R48, R49)*
  PA board complete
  R31, R32, R33, R34, R46, R47, R48, R49, R82, R83, R84, C3, C39, C56, L2, D17, Q14, IC1 } *PA board*
  PB board mount
  R3, R4, R7, R14, IC1 } *PB board*
- *When replacing the following components, make the BEAM CURRENT PROTECTOR adjustment. (☒R23)*
  PA board complete
  R16, R18, R19, R20, R21, R22, R23, R50, R51, R52, R53, R54, R69, D15, D20, Q9, Q11, Q12, IC3 } *PA board*
- *When replacing the following components, make the OVER VOLTAGE PROTECTOR adjustment. (☒R88, R89)*
  PA board complete
  R18, R85, R86, R87, R88, R89, D18, IC1 . . . PA board.

(OTHER)
HVR, FBT1, FBT2, L1, L2, C1, C2

☒ R38, R39 HV HOLD DOWN ADJUSTMENT

1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.*

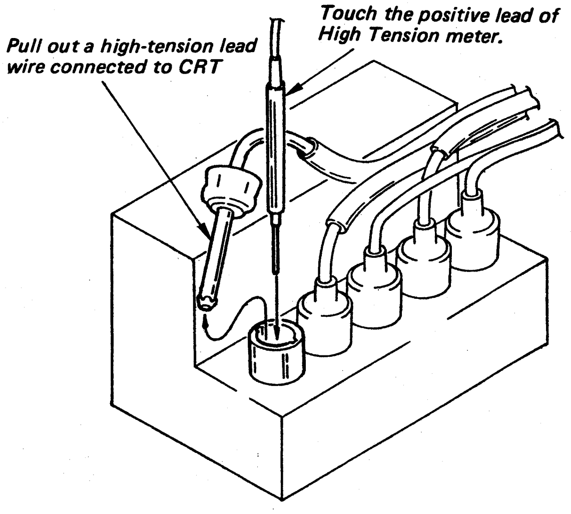
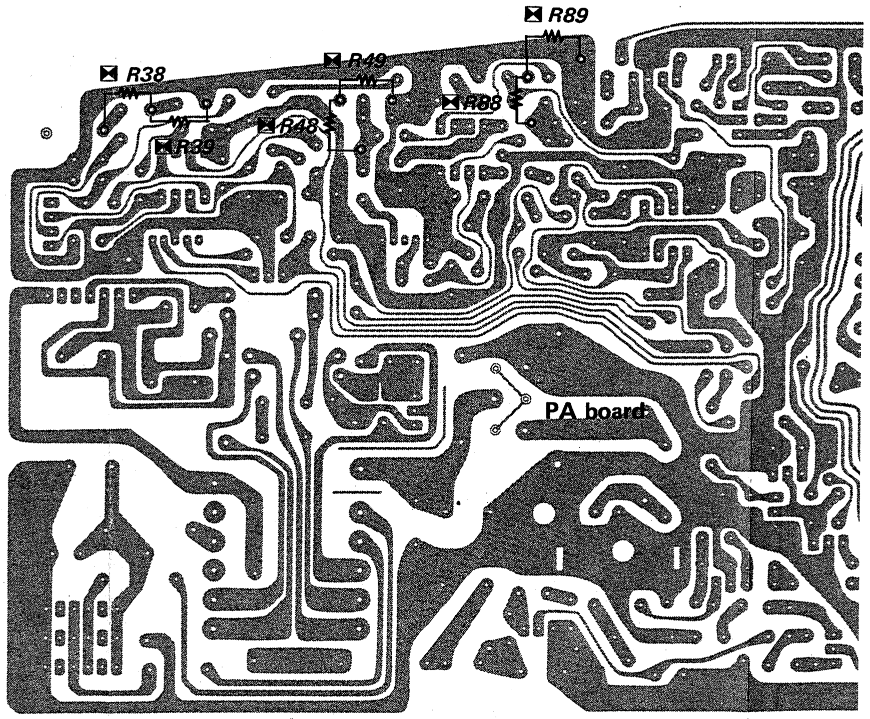

Pull out a high-tension lead wire connected to CRT
Touch the positive lead of High Tension meter.

Fig. 1

3. *Feed in a monoscope pattern from a signal generator, and maximize PICTURE and BRIGHT.*
4. *Confirm AC power supply voltage to be 120V.*
5. *Confirm that HV HOLD DOWN circuit operates and raster disappears when reading of the electrostatic voltmeter is less than 34.30 kV.*

☒ R48, R49, HV REG ADJUSTMENT

1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.*
3. *Feed in a monoscope pattern from a signal generator, and power supply voltage AC120V.*
4. *Set the user's control R.G.B. RASTER SW to OFF and R.G.B G2 VR (Focus Pack) to minimum.*
5. *Confirm that reading of the high-tension meter is less than 33.30 kV when the power switch is turned on.*



SECTION 5
SAFETY RELATED ADJUSTMENTS

5-1. PA AND PC BOARD ADJUSTMENTS

- *When replacing the following components, make the HV HOLD DOWN adjustment. (⊠ R38, R39)*
  PA board complete
  R15, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44, C30, D16, D22, Q10, IC2 } PA board
- *When replacing the following components, make the HV REG adjustment. (⊠R48, R49)*
  PA board complete
  R31, R32, R33, R34, R46, R47, R48, R49, R82, R83, R84, C3, C39, C56, L2, D17, Q14, IC1 } PA board
  PB board mount
  R3, R4, R7, R14, IC1 } PB board
- *When replacing the following components, make the BEAM CURRENT PROTECTOR adjustment. (⊠R23)*
  PA board complete
  R16, R18, R19, R20, R21, R22, R23, R50, R51, R52, R53, R54, R69, D15, D20, Q9, Q11, Q12, IC3 } PA board
- *When replacing the following components, make the OVER VOLTAGE PROTECTOR adjustment. (⊠R88, R89)*
  PA board complete
  R18, R85, R86, R87, R88, R89, D18, IC1 . . . PA board.

(OTHER)
HVR, FBT1, FBT2, L1, L2, C1, C2

⊠ R38, R39 HV HOLD DOWN ADJUSTMENT

1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.*
3. *Feed in a monoscope pattern from a signal generator, and maximize PICTURE and BRIGHT.*
4. *Confirm AC power supply voltage to be 120V.*
5. *Confirm that HV HOLD DOWN circuit operates and raster disappears when reading of the electrostatic voltmeter is less than 34.30 kV.*

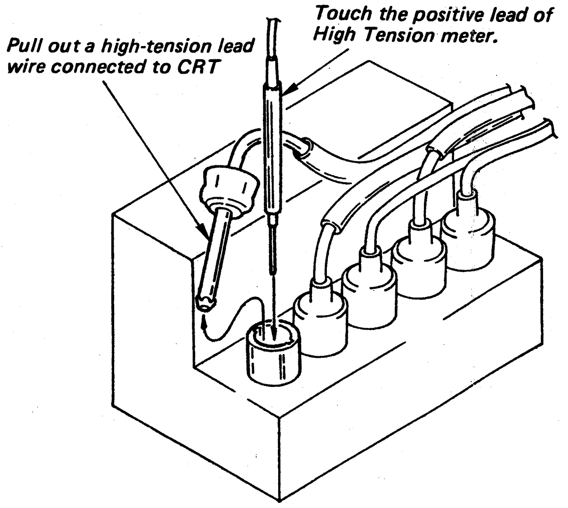

Pull out a high-tension lead wire connected to CRT
Touch the positive lead of High Tension meter.

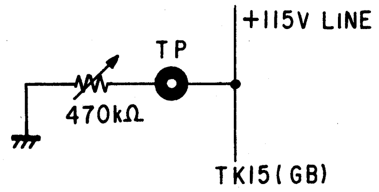
Fig. 1

⊠ R48, R49, HV REG ADJUSTMENT

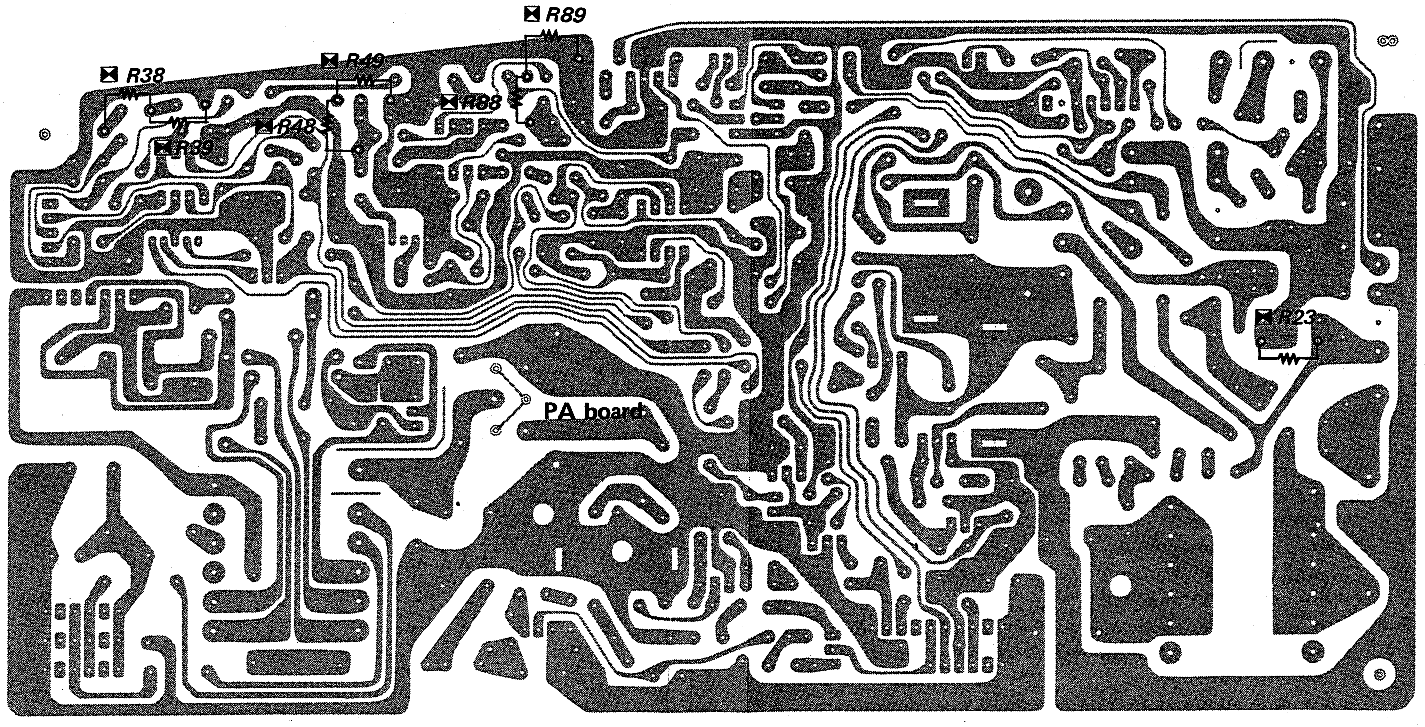
1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.*
3. *Feed in a monoscope pattern from a signal generator, and power supply voltage AC120V.*
4. *Set the user's control R.G.B. RASTER SW to OFF and R.G.B G2 VR (Focus Pack) to minimum.*
5. *Confirm that reading of the high-tension meter is less than 33.30 kV when the power switch is turned on.*

⊠ R88, R89 O.V.P ADJUSTMENT

1. *Receive a monoscope signal and turn the BRIGHT and PICTURE controls for maximum.*
2. *Supply 120V ac to with variable auto-transformer.*
3. *Connect a 470 kΩ variable VR to one side of GB board TP and one side of ground.*



4. *Adjust VR (470kΩ) for B+ Line is less than 125V DC, the O.V.P circuit opeates and the raster disappears.*
5. *If the specification is not met, adjust R88, R89 and repeat steps 4 until satisfied.*



⊠ R23 BEAM CURRENT PROTECTOR ADJUSTMENT

1. *Confirm that the power switch is in OFF position.*
2. *Disconnect RED anode-lead-wire from HV-DC Block and instead connect the positive lead of the electrostatic voltmeter, and the negative lead to the ground lug of RED CRT.*
3. *Install the tool to the PC-1 connector on the PC board and connect an ammeter.*
4. *Short-circuit between emitter and collector of Q12 on PA board.*
5. *Turn PICTURE, BRIGHT and R.G.B. G2 VRs (Focus Pack), and then confirm that protector circuit operates and raster disappears when ABL current is less than 3500 μA.*
6. *Remove the short-circuit between emitter and collector of Q12 on PA board and instead short-circuit between emitter and collector of Q11 and make the adjustment of 5.*
7. *Remove the short-circuit between emitter and collector of Q11 on PA board.*

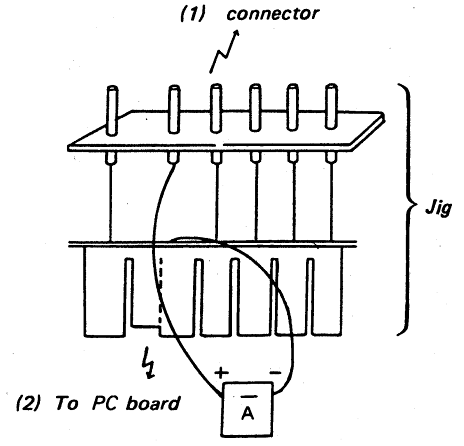
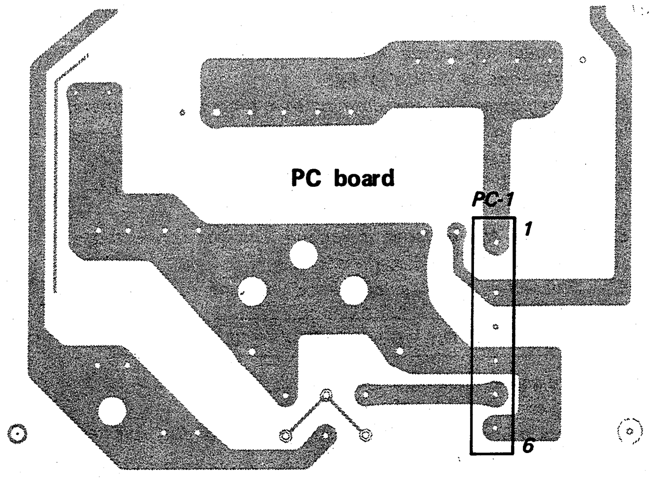


Fig. 2



5-2. WHEN NOT USING A HIGH-VOLTAGE METER (FOR H. PULSE MEASUREMENT)

◼ *HV HODD-DOWN CIRCUIT ADJUSTMENT (R38 AND R39)*

1. *Calibrate the detected voltage with a voltage dividing network as shown in Fig. 1.*
   Connect V1 to the 115V line of the unit and read voltage at this point with a digital voltmeter. Then, connect the voltmeter as shown in Fig. 1 and adjust the voltmeter reading to 1/10 of the V1 reading with the variable resistor (VR).

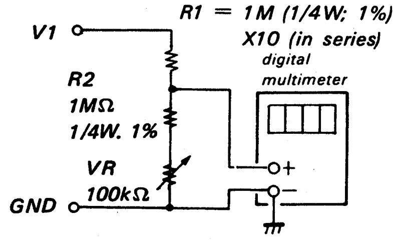
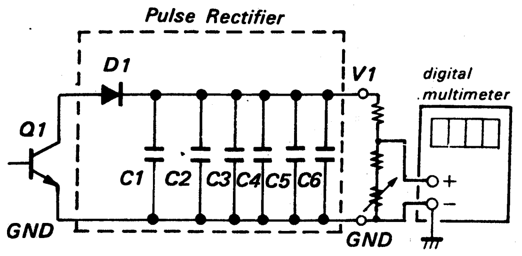


Fig. 1: Voltage dividing network

2. *Connect a pulse rectifier between collector and emitter of the Q1 of the PC board. (2SC1548)*



D1: V-11N (8-719-901-19)
C6~6: 20000PF/1.6KV (1-130-660-11)

Connect the resistance shunt adjusted in 1 to both ends of the pulse rectifier.

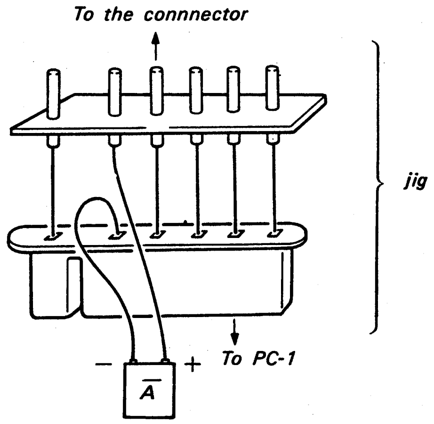
3. *Input a video monoscope signal (NTSC) and set the unit to highlight state.*
4. *Connect an appropriate resistor or variable resistor to both ends of R48 and R49.*
5. *Turn power ON and confirm that the digital voltmeter reading is 114.5V ±0.5V just before the high-voltage drop caused by HV HOLD-DOWN circuit operation.*
6. *Select R38, R39 and repeat step 4. as necessary.*
7. *After confirmation, turn power OFF.*
8. *Remove the resistor or variable resistor connected to both ends of R48 and R49.*
9. *Proceed to HV Reg. circuit adjustment.*

◼ *HV REG. CIRCUIT ADJUSTMENT (R48 AND R49)*

1. *The same measuring system of 2-(1) and (2) is used, but beam must be cut off.*
2. *Turn power ON and confirm that the digital voltmeter reading is 101.5V ±0.5V.*
3. *Select R48, R49 and repeat step 2. as necessary.*
4. *After confirmation, remove the pulse rectifier and the voltage dividing network.*
   (Unit input: AC120V/60 Hz)*

◼ *CONFIRMATION OF BEAM CURRENT PROTECTOR (R23)*

1. *Input a video monoscope signal (NTSC) and set the unit to highlight state.*
2. *Turn all RGB RASTER switches ON.*
3. *Connect a jig to the PC-1 of the PC board as shown in figure the right.*



4. *Turn power ON.*
5. *Short-circuit between collector and emitter of the Q12 of the PA board.*
6. *Turn G2, PIC and BRT, and confirm that PROT drops at an ammeter reading below 3500 uA.*
7. *If the above condition is not achieved, adjust R23.*
8. *Remove short-circuit connection of Q12 of the PA board, short-circuit Q11 and perform the same confirmation on it.*
9. *Turn power OFF and remove the jig.*

◼ *OVERVOLTAGE PROTECTOR ADJUSTMENT (R88 AND R89)*

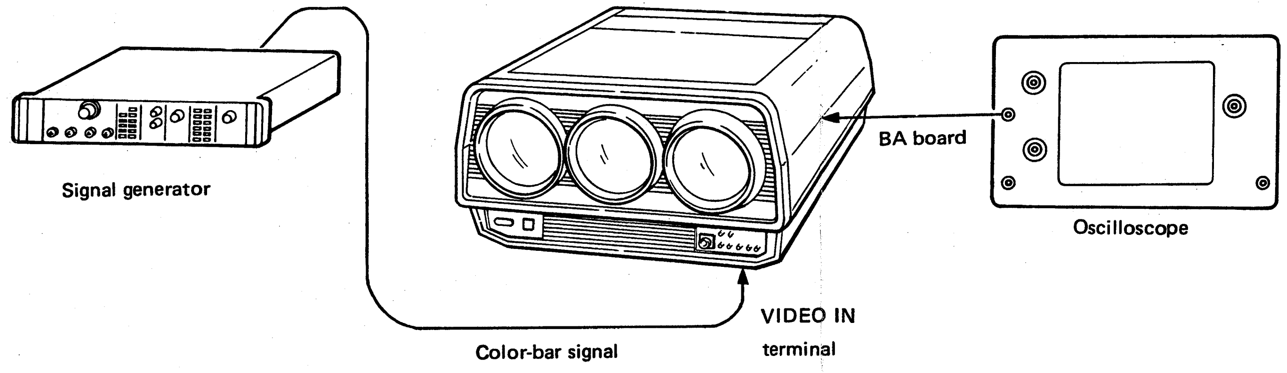
1. *Confirm that power is OFF.*
2. *Connect a 470 k variable resistor between GND and the TP located in the GB board inside the switch power supply (TK-15).*
   Note: Set the variable resistor to maximam resistance.
3. *Input a video monoscope signal (NTSC) and set the unit to highlight mode.*
4. *Connect a digital voltmeter to the 115V line.*
5. *Connect an appropriate resistor or variable resistor to both ends of R88 and R89.*
6. *Turn power ON and gradually turn the variable resistor connected in 2 until the digital voltmeter reading becomes 124V ±1V.*
7. *Select R88, R89 and confirm that high voltage drops when the digital voltmeter reading is 124V ±1V.*
8. *Mount the values selected in 7. to R88 and R89.*
9. *Turn power OFF and remove the variable resistor and the digital voltmeter connected in 2.*

SECTION 6
CIRCUIT ADJUSTMENTS

6-1. BA BOARD ADJUSTMENTS

- **CONNECTION**

CAUTION FOR ADJUSTMENT
WHEN YOU PERFORM SET UP ADJUSTMENT, ELECTRIC ADJUSTMENT, AND ADJUSTMENT FOR REPLACED PICTURE TUBE, YOU SHOULD NOT KEEP ANY CLEARANCE BETWEEN PICTURE TUBE AND DY (DEFLECTION YOKE).



Y. TRAP (T102, T103)

1. Input a PAL color bar.
2. Observe TP5 (TRAP) on the oscilloscope.
3. Turn T103 (4.43 MHz TRAP) core and adjust so that the 4.43 MHz carrier component is minimum.
4. Input a SECAM color bar.
5. Turn T102 (4.25 MHz TRAP) core and adjust so that the 4.25 MHz carrier component is minimum.

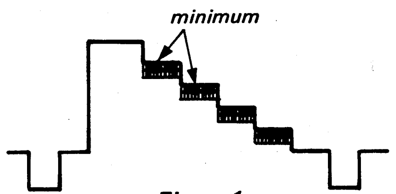
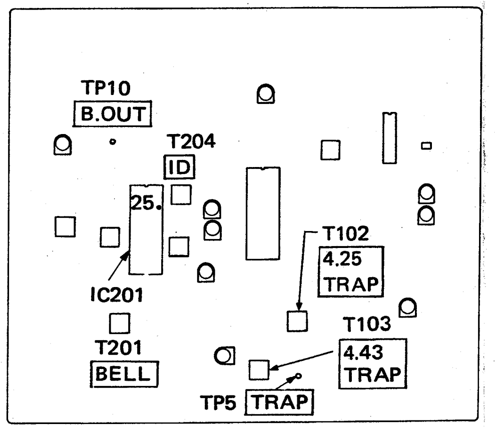


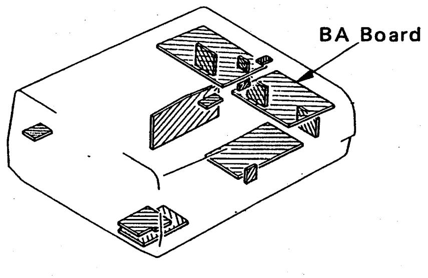
Figure 1

SECAM COLOR (T201, T204)

1. Receive a SECAM color bar signal.
2. Turn T204 (ID) core so that IC201 pin 25 DC level is maximum.
3. While observing the blue output TP10 (B.OUT) waveform, adjust T201 (BELL FILTER) so that the output waveform peak portions are flat. (Figure 2)

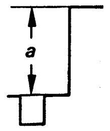
BA BOARD





DIS
1.
2.
3.

NTS
ADJ
1.
2.
3.
4.

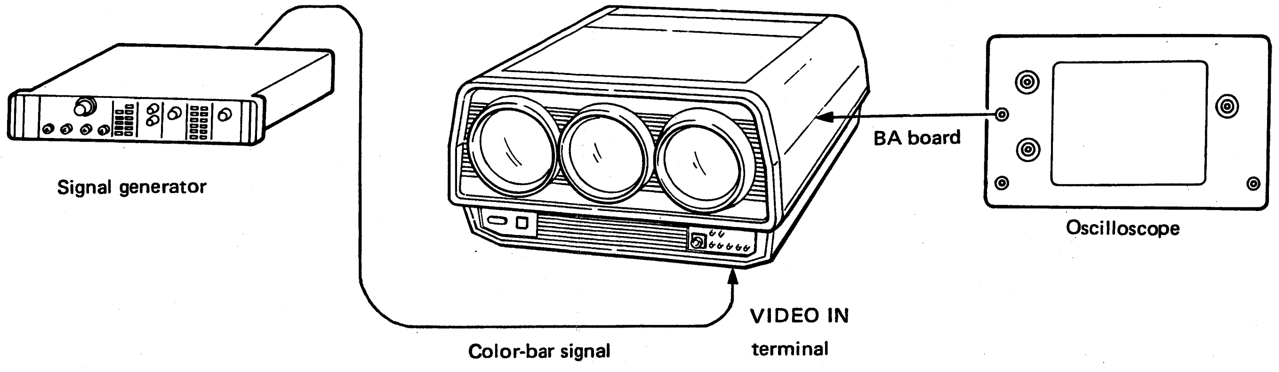


SECTION 6
CIRCUIT ADJUSTMENTS

6-1. BA BOARD ADJUSTMENTS

• CONNECTION

CAUTION FOR ADJUSTMENT
WHEN YOU PERFORM SET UP ADJUSTMENT, ELECTRIC ADJUSTMENT, AND ADJUSTMENT FOR REPLACED PICTURE TUBE, YOU SHOULD NOT KEEP ANY CLEARANCE BETWEEN PICTURE TUBE AND DY (DEFLECTION YOKE).


Signal generator
BA board
Oscilloscope
VIDEO IN
terminal
Color-bar signal

Y. TRAP (T102, T103)

1. Input a PAL color bar.
2. Observe TP5 (TRAP) on the oscilloscope.
3. Turn T103 (4.43 MHz TRAP) core and adjust so that the 4.43 MHz carrier component is minimum.
4. Input a SECAM color bar.
5. Turn T102 (4.25 MHz TRAP) core and adjust so that the 4.25 MHz carrier component is minimum.

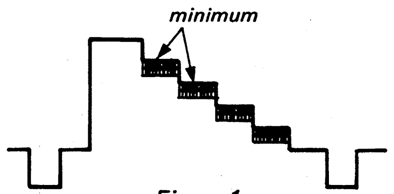
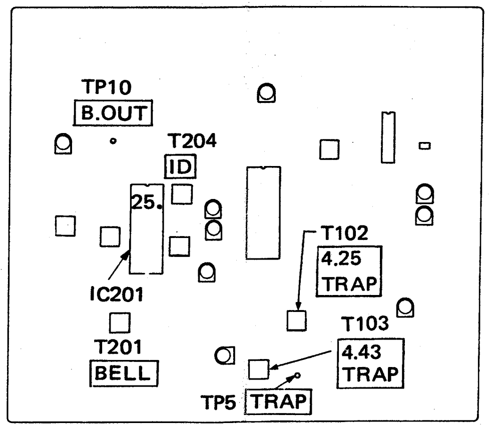


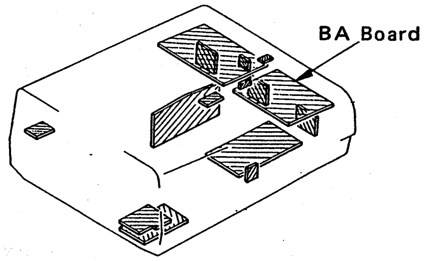
Figure 1

SECAM COLOR (T201, T204)

1. Receive a SECAM color bar signal.
2. Turn T204 (ID) core so that IC201 pin 25 DC level is maximum.
3. While observing the blue output TP10 (B.OUT) waveform, adjust T201 (BELL FILTER) so that the output waveform peak portions are flat. (Figure 2)

BA BOARD


TP10
B.OUT
T204
ID
25
IC201
T201
BELL
T102
4.25
TRAP
T103
4.43
TRAP
TP5
TRAP



DISCRI ADJUSTMENT (T202, T203)

1. Adjust T203 (B-Y DISCRI) so that the blue output TP10 waveform valleys are the same level.
2. Adjust T202 (R-Y DISCRI) so that red output TP8 (R.OUT) waveform valleys are the same level. (Figure 2)
3. After completing 1 and 2, fine adjust so that color components do not appear in the color bar black portion and white portion.

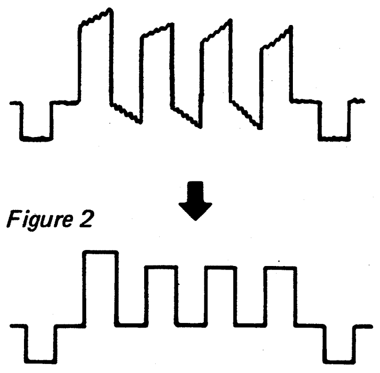


Figure 2

NTSC 3.58 1H COMB AND Y LEVEL ADJUSTMENTS (T401, RV403)

1. Input an NTSC 3.58 color bar.
2. Observe TP5 (TRAP) on the oscilloscope.
3. White tracking with BA board T401 and RV403, adjust the 3.58 MHz carrier component so that it is minimum.

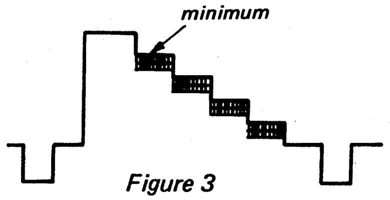
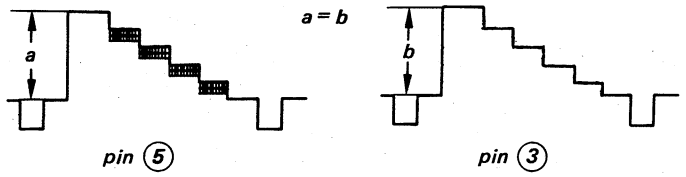


Figure 3

4. Adjust with RV404 so to make the levels on pins ③ and ⑤ the same.
(Make a = b as following figure.)



COLOR ADJUSTMENT (RV108, RV111)

1. Input a SECAM color bar.
2. Set the COLOR VR to center.
3. Adjsut RV111 (SECAM SUB COLOR) so that blue output TP10 (B.OUT) is as shown in Figure 4.
4. Input a PAL color bar and adjust RV108 (PAL SUB COLOR) so that blue output is as shown in Figure 4. COLOR VR center=6V DC

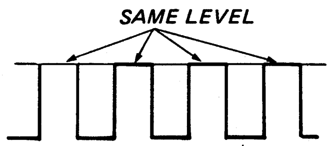
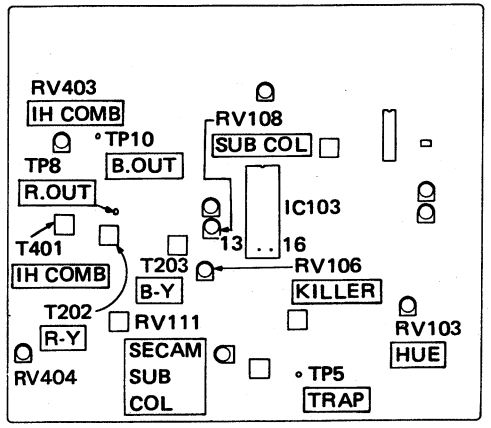


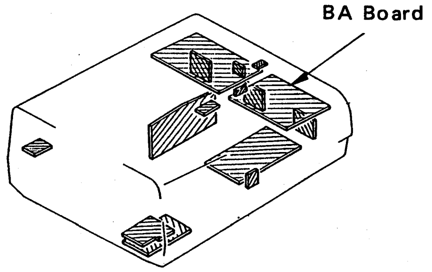
Figure 4

HUE CENTER (RV103)

1. Input a Color Pattern (SPCB).
2. Set COLOR VR to center.
3. Turn RV103 (HUE CENT) so that blue output and red output ANTI-PAL signals stop. At this time, confirm th that there is almost no color in the picture ANTI-PAL signal portion.
4. Input an NTSC color bar, turn the HUE VR and confirm HUE optimum position and that there is sufficient HUE variable range.

BA BOARD


RV403
IH COMB
TP10
B.OUT
TP8
R.OUT
T401
IH COMB
T202
R-Y
RV404
RV108
SUB COL
IC103
13
16
T203
B-Y
RV106
KILLER
RV111
SECAM
SUB
COL
RV103
HUE
TP5
TRAP



KILLER ADJUSTMENT (RV106)

1. Receive the NTSC black and white signal.
2. Cut the burst signal off by connecting the electrolytic capacitor 10 μF/16 V between pin ⑯ of IC103 and GND.
3. Adjust with RV106 (KILLER) so that the voltage on pin ⑬ of IC103 becomes 8.0 ±0.1 V dc.

PAL COLOR SYNC ADJUSTMENT (RV104, RV105)

1. Input a PAL color bar.
2. Connect 100 kΩ resistor between IC103 pin ⑬ and ground and release killer.
3. Connect 10 μF/16V electrolytic capacitor between IC103 pin ⑯ and ground and cut the burst signal.
4. Connect IC104 pin ② to the +12V line via a 2.2 kΩ resistor and get 4.43 MHz mode.
5. Adjust RV104 (APC-2 4.43 MHz) to get color sync. And adjust B.OUT. (Figure 5)
6. Remove the 2.2 kΩ resistor in step 4.
7. Input an NTSC color bar.
8. Ground Q144 base momentarily and get 3.58 MHz mode.
   (Repeat two or three times if it does not change the first time.)
9. Adjust RV105 (APC-1 3.58 MHz) to get color sync. And adjust B.OUT. (Figure 6)

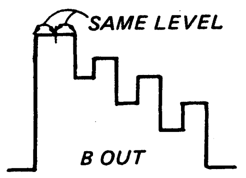


Figure 5

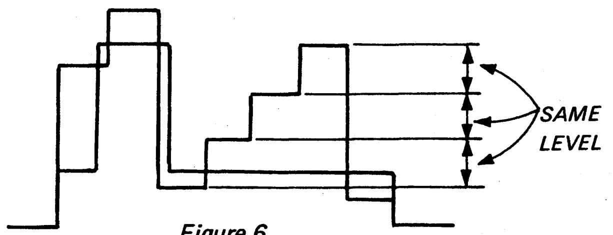


Figure 6

SUB PIC ADJUSTMENT (RV107)

1. Input a PAL color bar.
2. Set COLOR VR to minimum.
3. Adjust RV107 (SUB PIC) so that the blue output TP10 (B.OUT) is 0.85±0.05Vp-p. from the pedestal level.

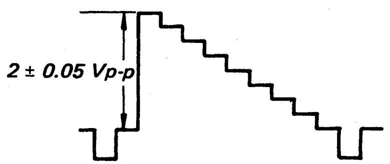


Figure 7

PAL MATRIX (T104, RV110)

1. Input a PAL color bar.
2. Observe blue output TP10 (B.OUT) and red output TP8 (R.OUT) waveforms.
3. Set COLOR VR to center.
4. While tracking with T104 (DAT) and RV110 (DELAY ADJ VR), adjust so that blue output TP10 (B.OUT) and red output TP8 (R.OUT) waveforms are both as shown in Figure 8.
5. Fine adjust 6. HUE CENTER after completing the adjustment.

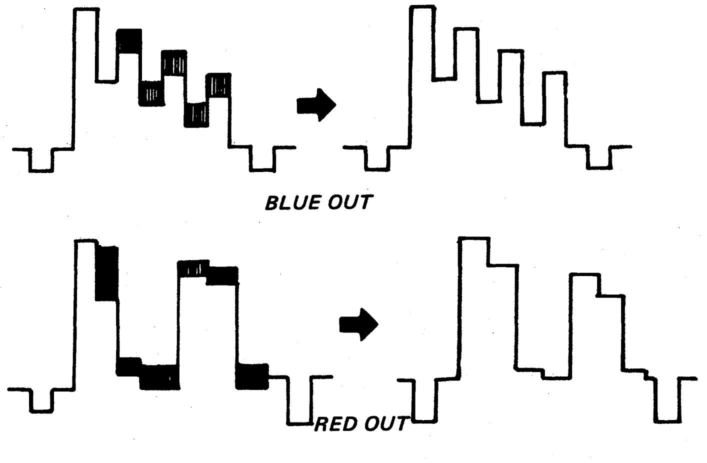
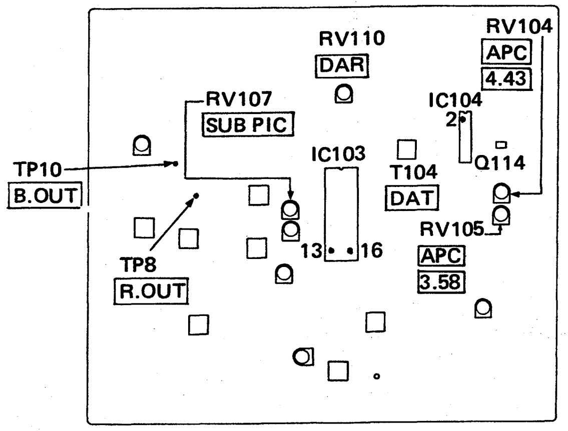
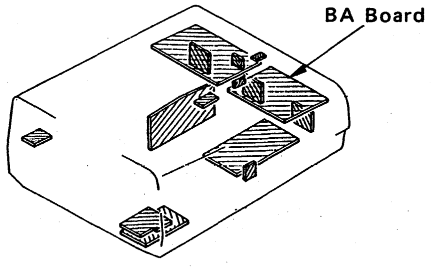


Figure 8

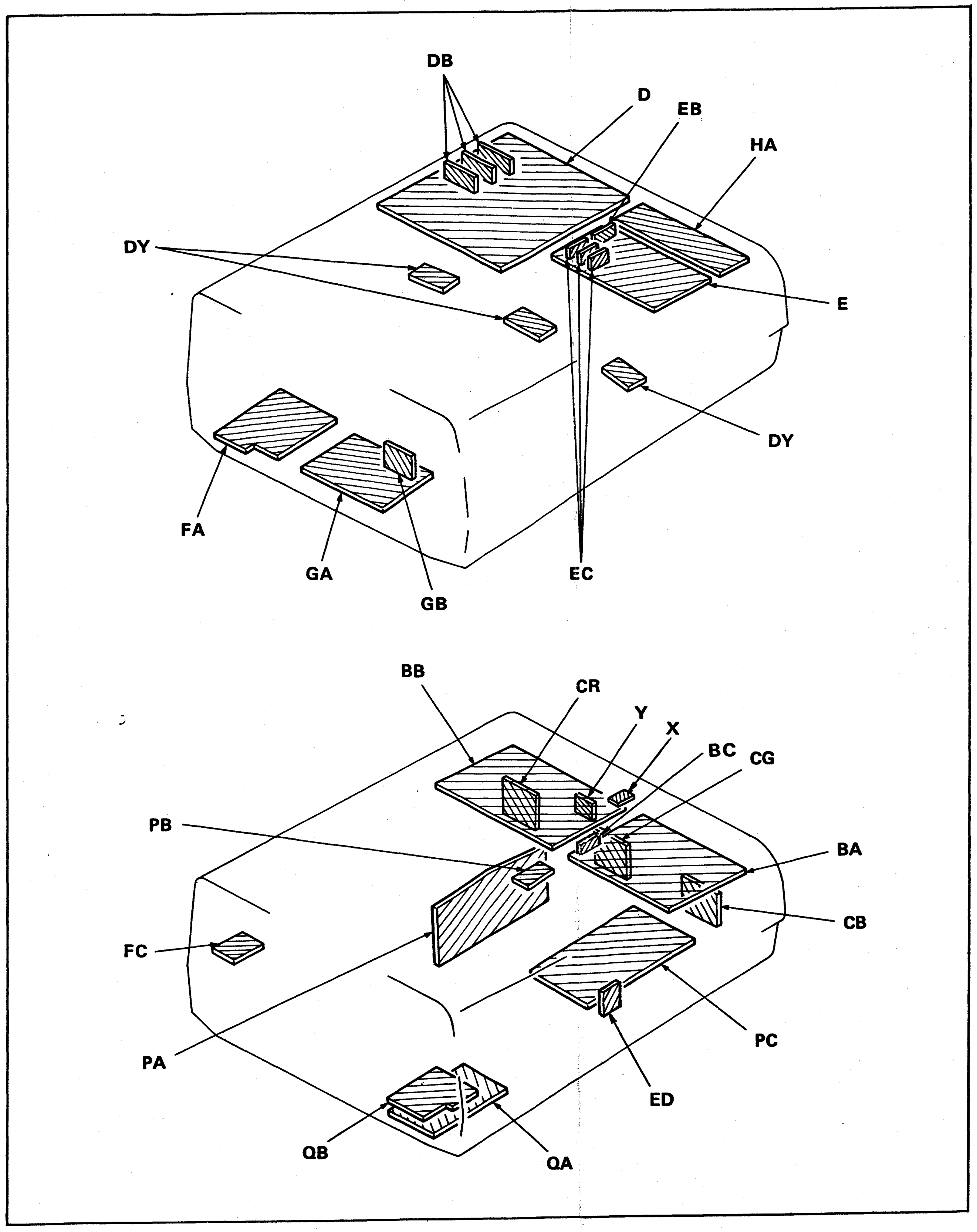
BA BOARD





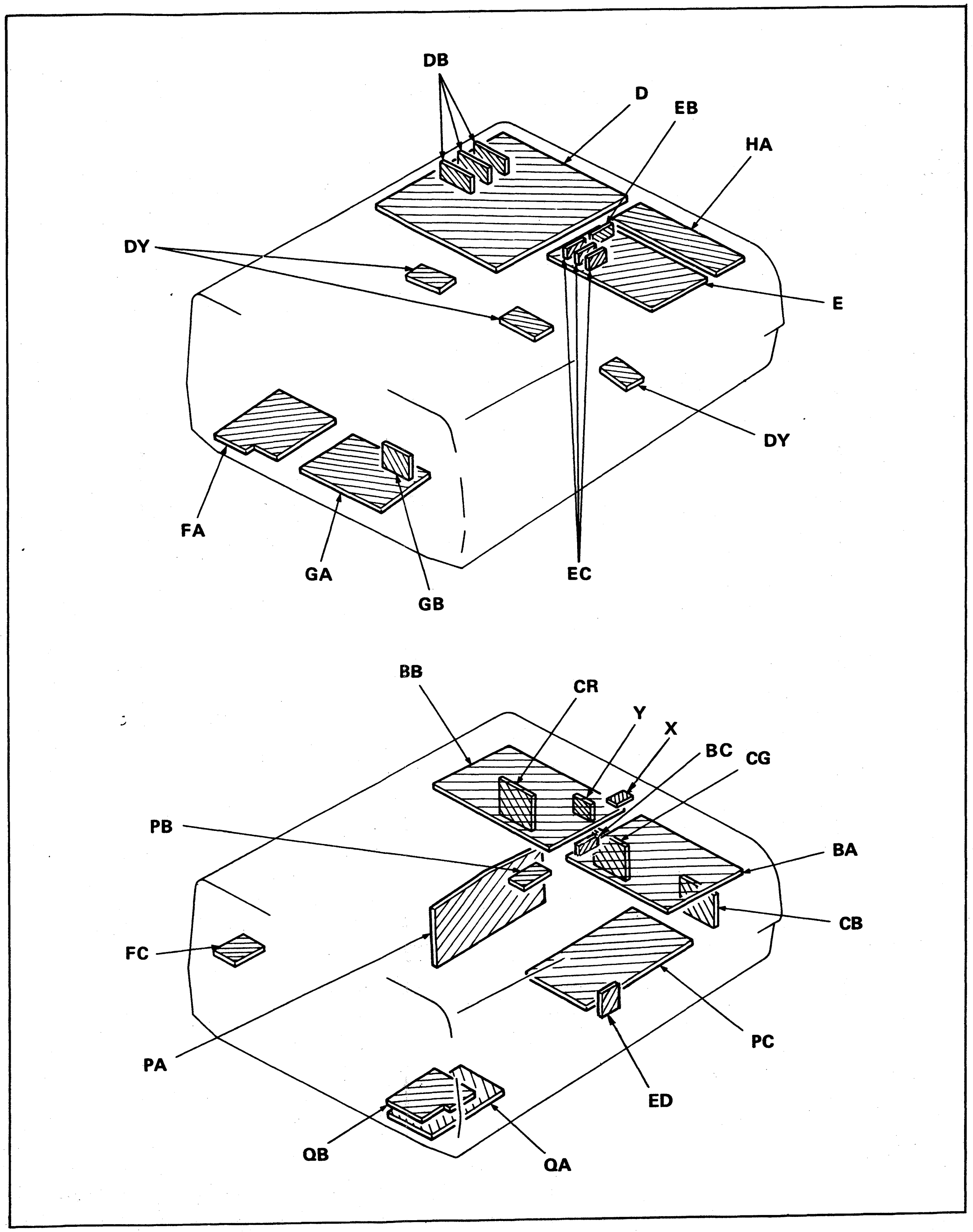
SECTION 7
DIAGRAMS

7-1. CIRCUIT BOARDS LOCATION



SECTION 7
DIAGRAMS

7-1. CIRCUIT BOARDS LOCATION



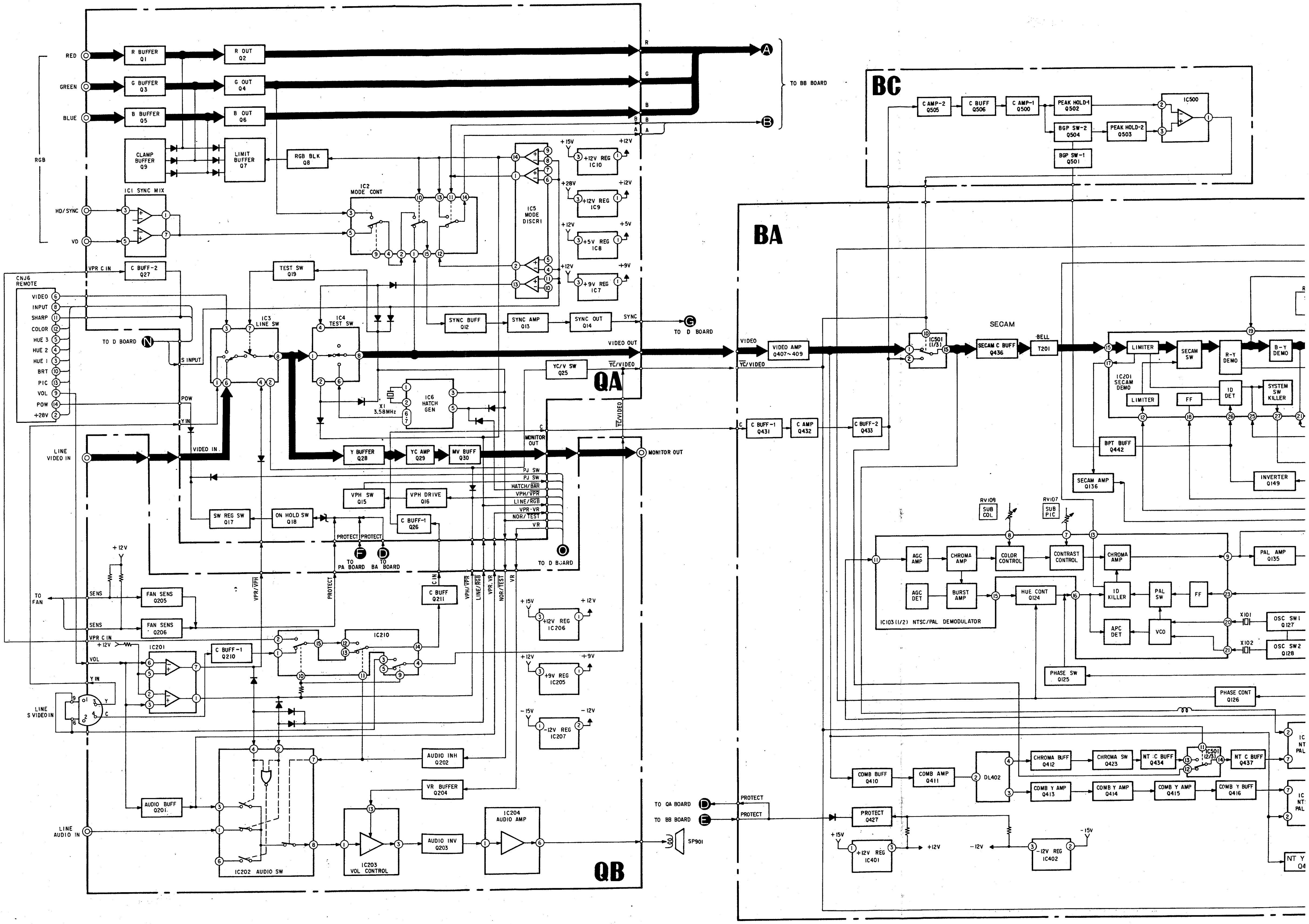
7-2. QUICK REFERENCE

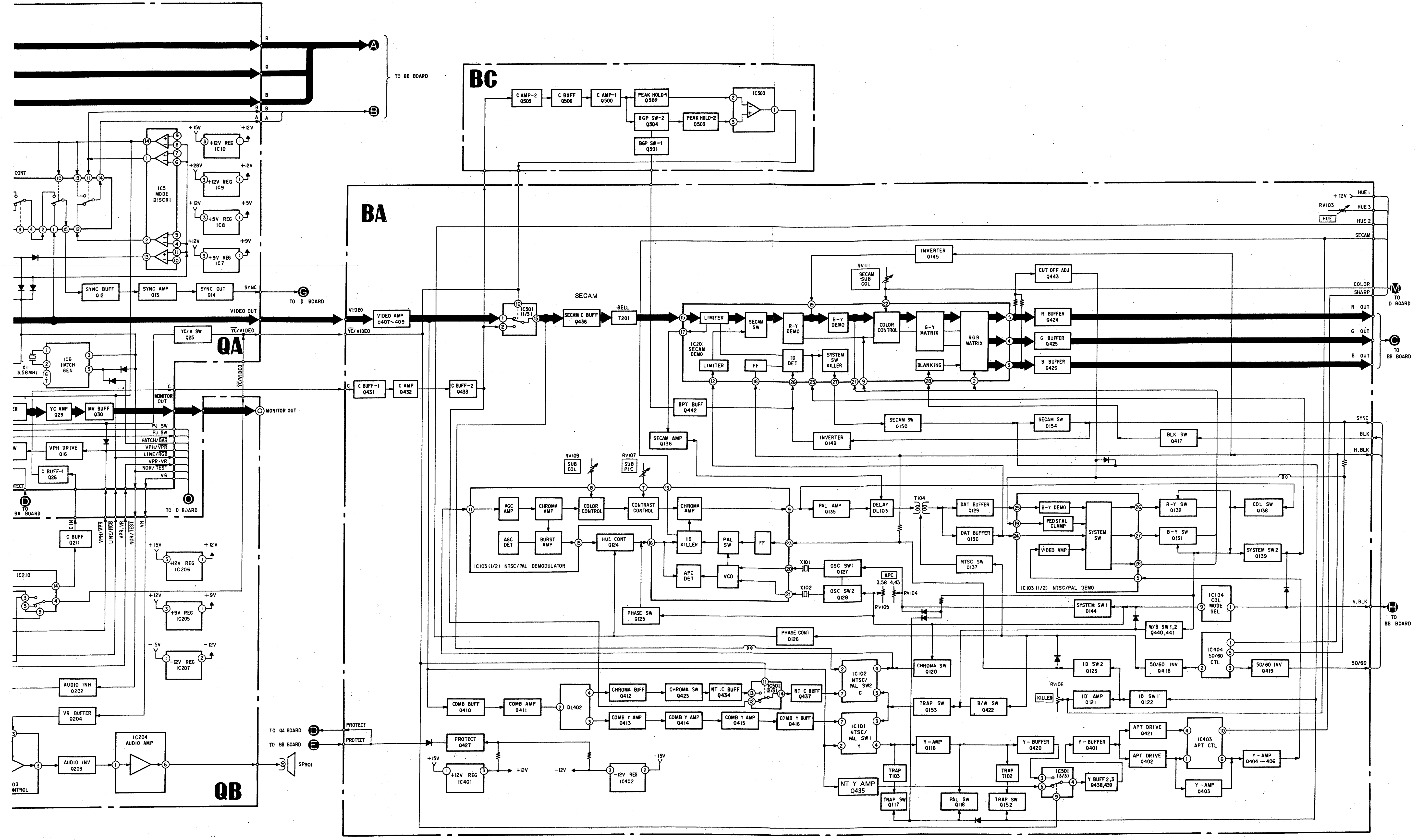
BOARD SECTION	BA	BB	BC	CB	CG	CR	D	DB	DY	E	EB
CIRCUIT DESCRIPTION	–	–	–	–	–	–	–	–	–	–	–
ADJUSTMENTS	29	25	–	–	–	–	21	–	–	–	–
BLOCK DIAGRAM	35	42	35	44	44	44	38	40	44	37	37
MOUNTING DIAGRAM	67	77	69	79	79	79	54	56	66	63	63
SCHEMATIC DIAGRAM	71	74	71	76	76	76	57	59	62	60	60
ELECTRICAL PARTS LIST	93	91	98	106	106	105	107	111	112	112	113

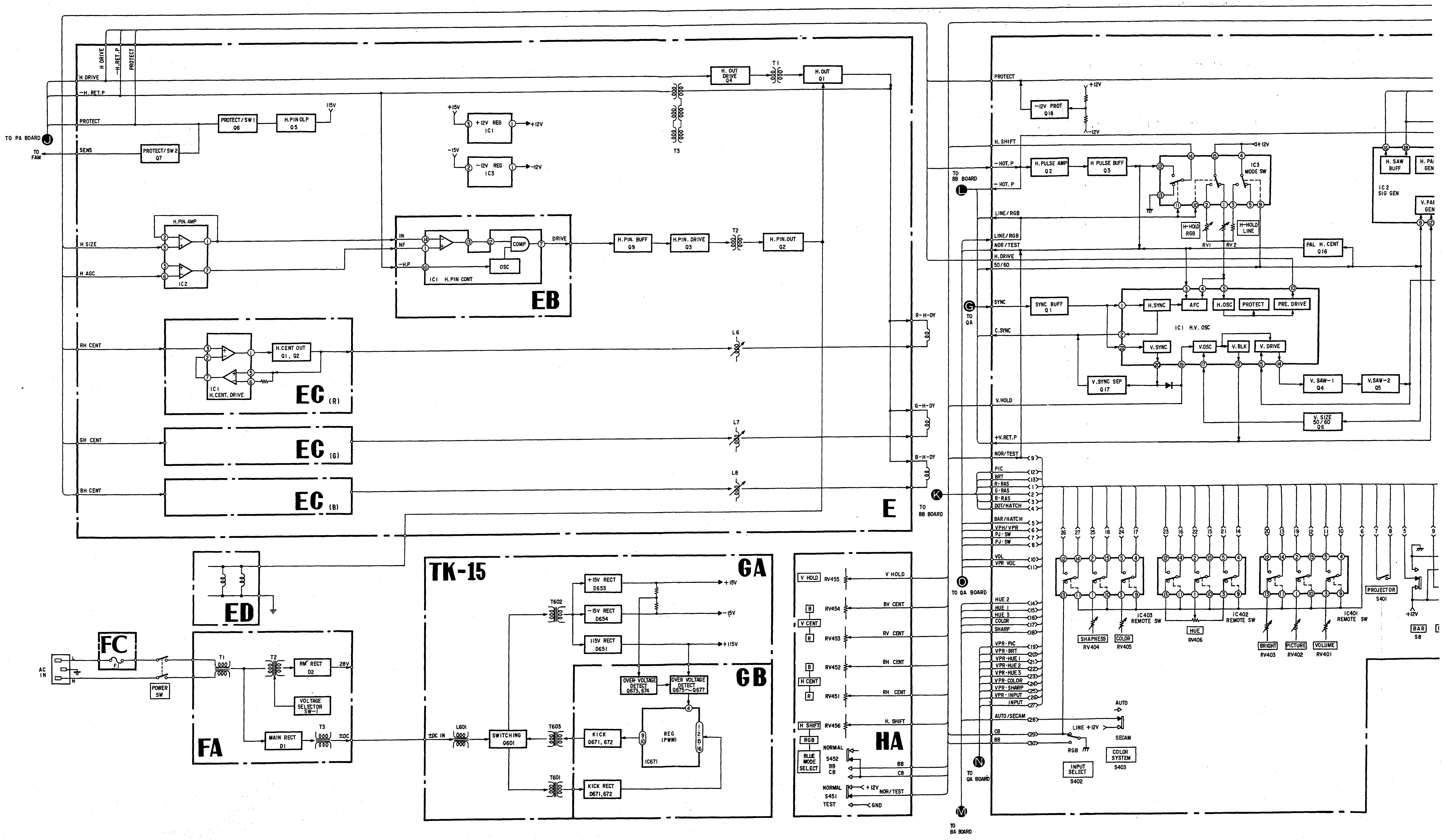
BOARD SECTION	EC	ED	FA	FC	GA	GB	HA	PA	PB	PC	QA
CIRCUIT DESCRIPTION	–	–	–	–	–	–	–	–	32	–	–
ADJUSTMENTS	–	–	–	–	–	–	–	26	–	26	–
BLOCK DIAGRAM	37	37	37	37	37	37	37	43	43	44	34
MOUNTING DIAGRAM	63	63	84	84	–	–	66	64	64	65	51
SCHEMATIC DIAGRAM	61	60	81	81	82	82	62	60	60	62	48
ELECTRICAL PARTS LIST	113	114	102	102	–	–	114	99	101	99	102

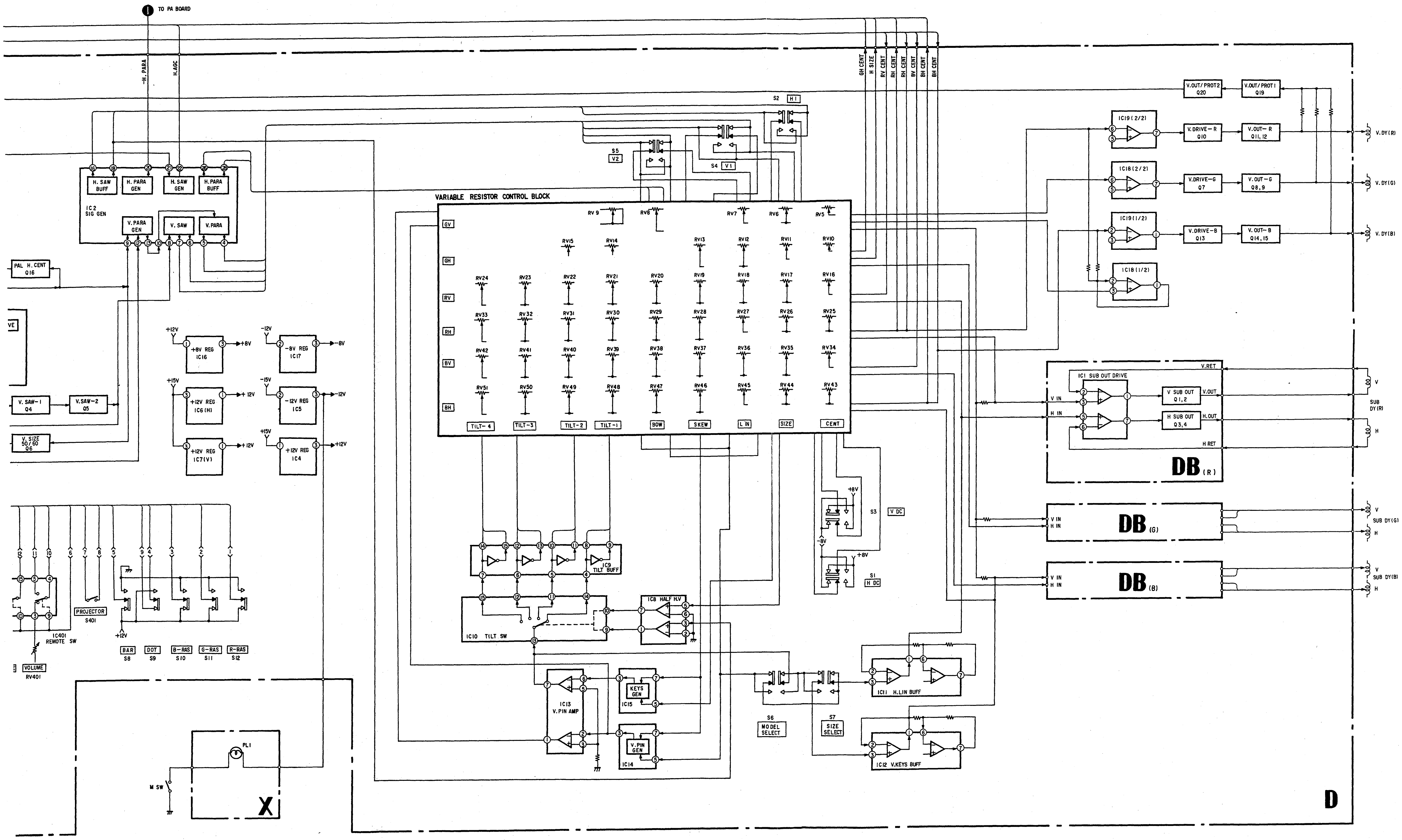
BOARD SECTION	QB	X	Y								
CIRCUIT DESCRIPTION	–	–	–								
ADJUSTMENTS	–	–	–								
BLOCK DIAGRAM	34	39	44								
MOUNTING DIAGRAM	52	66	66								
SCHEMATIC DIAGRAM	48	62	62								
ELECTRICAL PARTS LIST	104	114	114								

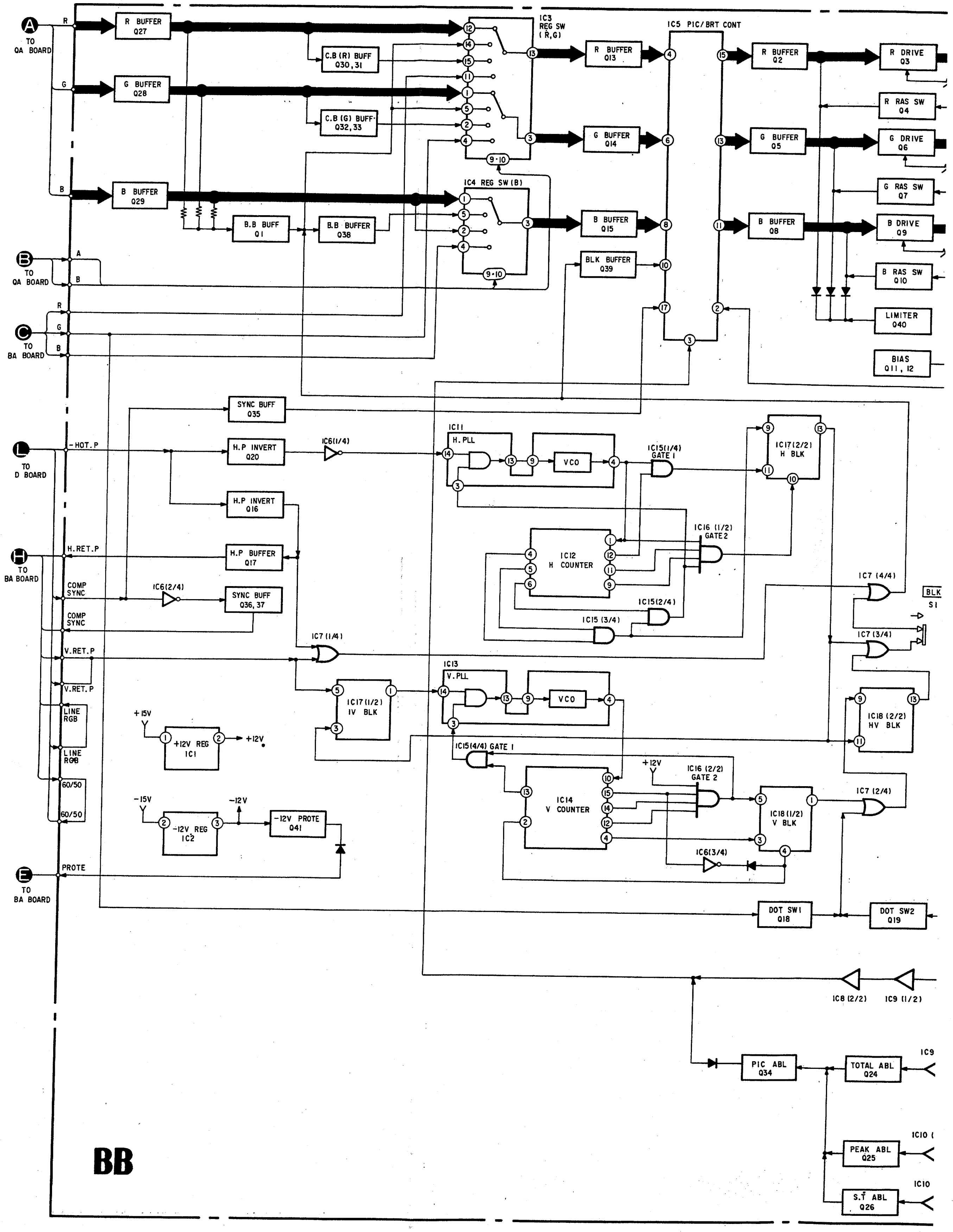
7-3. BLOCK DIAGRAMS

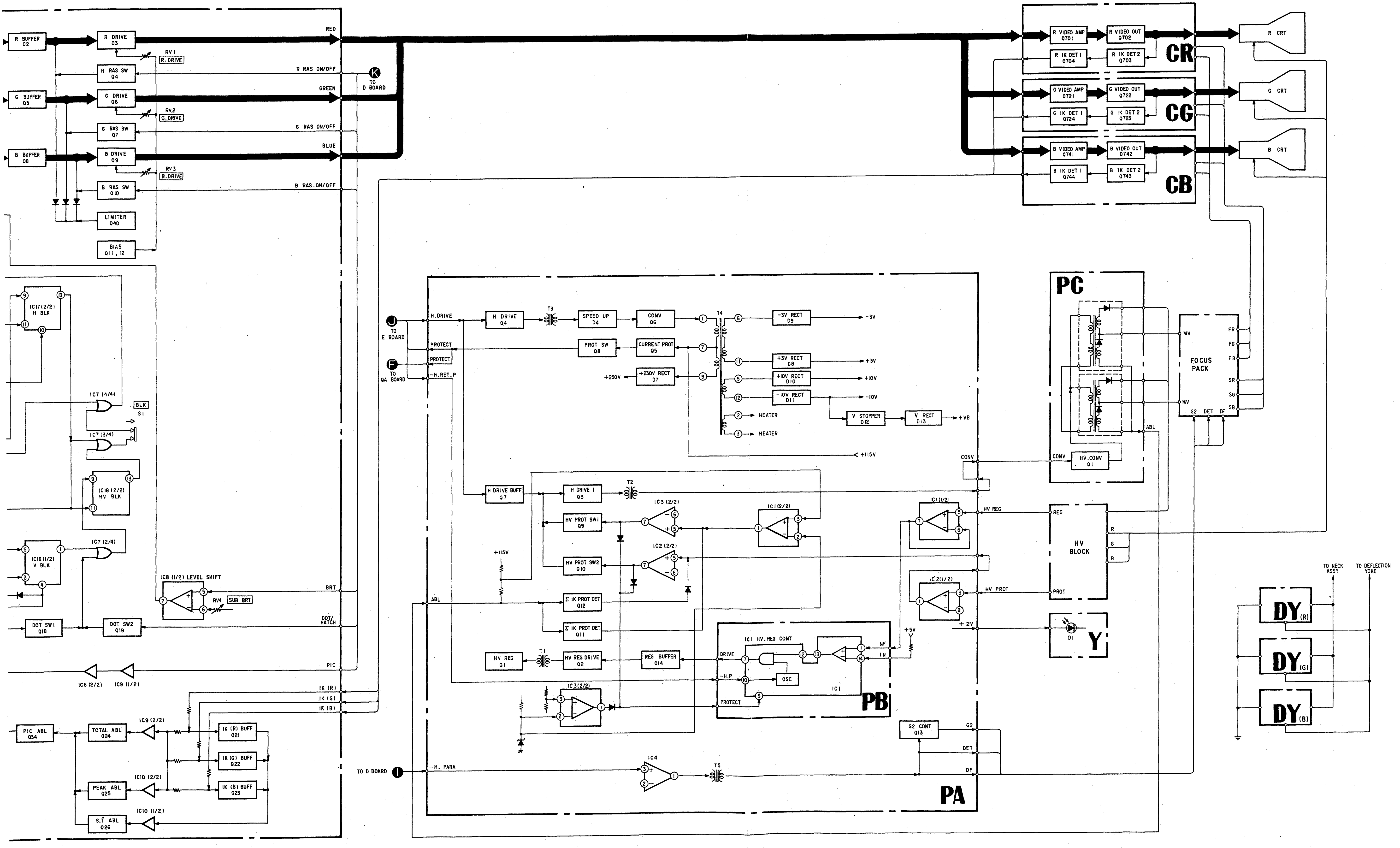

QA
QB
BA
BC
RED
GREEN
BLUE
RGB
HD/SYNC
VD
R BUFFER Q1
G BUFFER Q3
B BUFFER Q5
R OUT Q2
G OUT Q4
B OUT Q6
CLAMP BUFFER Q9
LIMIT BUFFER Q7
RGB BLK Q8
IC1 SYNC MIX
IC2 MODE CONT
IC5 MODE DISCRI
+12V REG IC10
+12V REG IC9
+5V REG IC8
+9V REG IC7
TO BB BOARD
VPR C IN
C BUFF-2 Q27
TEST SW Q19
CN J6 REMOTE
VIDEO
INPUT
SHARP
COLOR
HUE 3
HUE 2
HUE 1
BRT
PIC
VOL
POW
+28V
TO D BOARD
IC3 LINE SW
IC4 TEST SW
SYNC BUFF Q12
SYNC AMP Q13
SYNC OUT Q14
SYNC
VIDEO OUT
YC/V SW Q25
YC/VIDEO
X1 3.58MHz
IC6 HATCH GEN
LINE VIDEO IN
Y BUFFER Q28
YC AMP Q29
MV BUFF Q30
MONITOR OUT
PJ SW
HATCH/BAR
VPH/VPR
LINE/RGB
VPR·VR
NOR/TEST
VR
VPH SW Q15
VPH DRIVE Q16
SW REG SW Q17
ON HOLD SW Q18
C BUFF-1 Q26
PROTECT
TO PA BOARD
TO BA BOARD
TO FAN
SENS
FAN SENS Q205
FAN SENS Q206
C BUFF Q211
+12V REG IC206
+9V REG IC205
-12V REG IC207
IC201
C BUFF-1 Q210
IC210
LINE S VIDEO IN
AUDIO INH Q202
VR BUFFER Q204
AUDIO BUFF Q201
LINE AUDIO IN
IC202 AUDIO SW
IC203 VOL CONTROL
AUDIO INV Q203
IC204 AUDIO AMP
SP901
TO QA BOARD
TO BB BOARD
C AMP-2 Q505
C BUFF Q506
C AMP-1 Q500
PEAK HOLD-1 Q502
BGP SW-2 Q504
PEAK HOLD-2 Q503
BGP SW-1 Q501
IC500
VIDEO AMP Q407~409
IC501 (1/3)
SECAM
SECAM C BUFF Q436
BELL T201
LIMITER
SECAM SW
R-Y DEMO
B-Y DEMO
IC201 SECAM DEMO
ID DET
SYSTEM SW KILLER
FF
C BUFF-1 Q431
C AMP Q432
C BUFF-2 Q433
BPT BUFF Q442
SECAM AMP Q136
INVERTER Q149
RV109 SUB COL
RV107 SUB PIC
AGC AMP
CHROMA AMP
COLOR CONTROL
CONTRAST CONTROL
PAL AMP Q135
AGC DET
BURST AMP
HUE CONT Q124
ID KILLER
PAL SW
IC103 (1/2) NTSC/PAL DEMODULATOR
APC DET
VCO
X101
X102
OSC SW1 Q127
OSC SW2 Q128
PHASE SW Q125
PHASE CONT Q126
COMB BUFF Q410
COMB AMP Q411
DL402
CHROMA BUFF Q412
CHROMA SW Q423
NT C BUFF Q434
IC501 (2/3)
NT C BUFF Q437
COMB Y AMP Q413
COMB Y AMP Q414
COMB Y AMP Q415
COMB Y BUFF Q416
PROTECT Q427
+12V REG IC401
-12V REG IC402


BC
BA
QA
QB
TO BB BOARD
TO D BOARD
TO BA BOARD
TO QA BOARD
C AMP-2 Q505
C BUFF Q506
C AMP-1 Q500
PEAK HOLD-1 Q502
BGP SW-2 Q504
PEAK HOLD-2 Q503
BGP SW-1 Q501
IC500
IC5 MODE DISCRI
+12V REG IC10
+12V REG IC9
+5V REG IC8
+9V REG IC7
SYNC BUFF Q12
SYNC AMP Q13
SYNC OUT Q14
SYNC
VIDEO OUT
YC/V SW Q25
YC/VIDEO
IC6 HATCH GEN
X1 3.58MHz
YC AMP Q29
MV BUFF Q30
MONITOR OUT
VPH DRIVE Q16
C BUFF-1 Q26
PJ SW
HATCH/BAR
VPH/VPR
LINE/RGB
VPR-VR
NOR/TEST
VR
C BUFF Q211
+12V REG IC206
IC210
+9V REG IC205
-12V REG IC207
AUDIO INH Q202
VR BUFFER Q204
AUDIO INV Q203
IC204 AUDIO AMP
SP901
VIDEO
VIDEO AMP Q407~409
IC501 (1/3)
SECAM
SECAM C BUFF Q436
BELL
T201
LIMITER
SECAM SW
R-Y DEMO
B-Y DEMO
COLOR CONTROL
G-Y MATRIX
RGB MATRIX
IC201 SECAM DEMO
FF
ID DET
SYSTEM SW KILLER
BLANKING
INVERTER Q145
RV111 SECAM SUB COL
CUT OFF ADJ Q443
R BUFFER Q424
G BUFFER Q425
B BUFFER Q426
R OUT
G OUT
B OUT
COLOR
SHARP
HUE 1
HUE 2
HUE 3
RV103
HUE
SECAM
+12V
C BUFF-1 Q431
C AMP Q432
C BUFF-2 Q433
BPT BUFF Q442
SECAM AMP Q136
SECAM SW Q150
SECAM SW Q154
INVERTER Q149
BLK SW Q417
SYNC
BLK
H.BLK
RV109 SUB COL
RV107 SUB PIC
AGC AMP
CHROMA AMP
COLOR CONTROL
CONTRAST CONTROL
CHROMA AMP
AGC DET
BURST AMP
HUE CONT Q124
ID KILLER
PAL SW
FF
APC DET
VCO
IC103 (1/2) NTSC/PAL DEMODULATOR
PAL AMP Q135
DELAY DL103
T104
DAT BUFFER Q129
DAT BUFFER Q130
B-Y DEMO
PEDSTAL CLAMP
VIDEO AMP
SYSTEM SW
R-Y SW Q132
B-Y SW Q131
COL SW Q138
SYSTEM SW2 Q139
IC103 (1/2) NTSC/PAL DEMO
X101
X102
OSC SW1 Q127
OSC SW2 Q128
APC
3.58 4.43
RV104
RV105
NTSC SW Q137
PHASE SW Q125
PHASE CONT Q126
SYSTEM SW1 Q144
W/B SW1,2 Q440,441
IC104 COL MODE SEL
V.BLK
IC404 50/60 CTL
50/60 INV Q418
50/60 INV Q419
50/60
CHROMA SW Q120
ID SW2 Q123
RV106
KILLER
ID AMP Q121
ID SW1 Q122
IC102 NTSC/PAL SW2 C
IC101 NTSC/PAL SW1 Y
COMB BUFF Q410
COMB AMP Q411
DL402
CHROMA BUFF Q412
CHROMA SW Q423
NT C BUFF Q434
IC501 (2/3)
NT C BUFF Q437
COMB Y AMP Q413
COMB Y AMP Q414
COMB Y AMP Q415
COMB Y BUFF Q416
TRAP SW Q153
B/W SW Q422
PROTECT
PROTECT Q427
+12V REG IC401
-12V REG IC402
+15V
-15V
+12V
-12V
Y-AMP Q116
Y-BUFFER Q420
Y-BUFFER Q401
APT DRIVE Q421
APT DRIVE Q402
IC403 APT CTL
Y-AMP Q404~406
Y-AMP Q403
NT Y AMP Q435
TRAP T103
TRAP SW Q117
PAL SW Q118
TRAP T102
TRAP SW Q152
IC501 (3/3)
Y BUFF 2,3 Q438,439

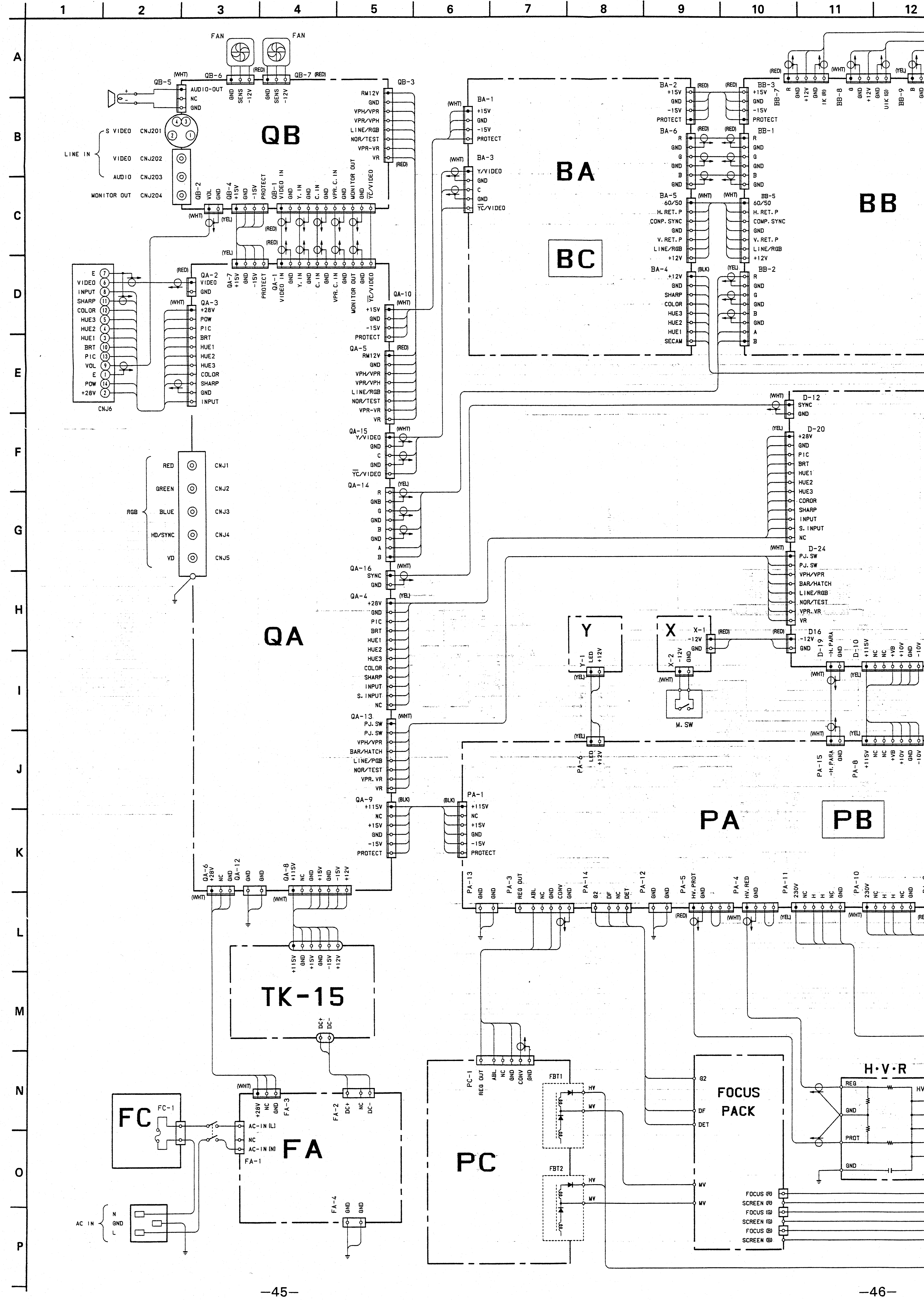

TO PA BOARD
TO FAM
H DRIVE
-H. RET. P
PROTECT
SENS
PROTECT/SW 1 Q6
H.PIN OLP Q5
PROTECT/SW 2 Q7
15V
+15V
+12V REG IC1
-15V
-12V REG IC3
H. OUT DRIVE Q4
T1
H.OUT Q1
T3
H.PIN.AMP
H SIZE
H AGC
IC2
IN
NF
-H.P
COMP
OSC
DRIVE
IC1 H.PIN CONT
EB
H.PIN. BUFF Q9
H.PIN. DRIVE Q3
T2
H.PIN.OUT Q2
RH CENT
H.CENT OUT Q1, Q2
IC1 H.CENT. DRIVE
EC (R)
GH CENT
EC (G)
BH CENT
EC (B)
L6
L7
L8
R-H-DY
G-H-DY
B-H-DY
E
TO BB BOARD
ED
FC
AC IN
F1
POWER SW
FA
T1
T2
RM RECT D2
28V
VOLTAGE SELECTOR SW-1
MAIN RECT D1
T3
±DC
TK-15
GA
+15V RECT D653
-15V RECT D654
115V RECT D651
+15V
-15V
+115V
T602
T603
T601
±DC IN
L601
SWITCHING Q601
GB
OVER VOLTAGE DETECT Q673, 674
OVER VOLTAGE DETECT Q675~Q677
KICK Q671, 672
REG (PWM) IC671
KICK RECT D671, 672
HA
V HOLD RV455
V HOLD
BV CENT RV454
V CENT
RV CENT RV453
BH CENT RV452
H CENT
RH CENT RV451
H SHIFT RV456
H. SHIFT
RGB
BLUE MODE SELECT
NORMAL S452 BB CB
BB
CB
NORMAL S451 TEST
+12V
NOR/TEST
GND
PROTECT
-12V PROT Q18
+12V
-12V
H. SHIFT
-HOT. P
H. PULSE AMP Q2
H PULSE BUFF Q3
IC3 MODE SW
TO BB BOARD
H-HOLD RGB
H-HOLD LINE
RV1
RV2
LINE/RGB
NOR/TEST
H.DRIVE
50/60
PAL H. CENT Q16
H. SAW BUFF
IC2 SIG GEN
SYNC
SYNC BUFF Q1
TO QA
C.SYNC
H.SYNC
AFC
H.OSC
PROTECT
PRE. DRIVE
IC1 H.V. OSC
V. SYNC
V.OSC
V. BLK
V. DRIVE
V.SYNC SEP Q17
V. SAW-1 Q4
V.SAW-2 Q5
V.HOLD
V. SIZE 50/60 Q6
+V.RET.P
NOR/TEST
PIC
BRT
R-RAS
G-RAS
B-RAS
DOT/HATCH
BAR/HATCH
VPH/VPR
PJ-SW
PJ-SW
VOL
VPR VOL
TO QA BOARD
HUE 2
HUE 1
HUE 3
COLOR
SHARP
VPR-PIC
VPR-BRT
VPR-HUE 1
VPR-HUE 2
VPR-HUE 3
VPR-COLOR
VPR-SHARP
VPR-INPUT
INPUT
AUTO/SECAM
CB
BB
IC403 REMOTE SW
IC402 REMOTE SW
IC401 REMOTE SW
SHAPNESS RV404
COLOR RV405
HUE RV406
BRIGHT RV403
PICTURE RV402
VOLUME RV401
PROJECTOR S401
+12V
BAR S8
AUTO
SECAM
LINE +12V
RGB
COLOR SYSTEM S403
INPUT SELECT S402
TO QA BOARD
TO BA BOARD


TO PA BOARD
-H.PARA
H.AGC
GH CENT
H SIZE
RV CENT
RH CENT
RH CENT
BV CENT
BH CENT
BH CENT
S2 H1
S5 V2
S4 V1
H. SAW BUFF
H. PARA GEN
H. SAW GEN
H. PARA BUFF
IC2 SIG GEN
V. PARA GEN
V. SAW
V. PARA
PAL H. CENT Q16
V. SAW-1 Q4
V.SAW-2 Q5
V. SIZE 50/60 Q6
+8V REG IC16
-8V REG IC17
+12V REG IC6(H)
-12V REG IC5
+12V REG IC7(V)
+12V REG IC4
+12V
-12V
+15V
-15V
+8V
-8V
VARIABLE RESISTOR CONTROL BLOCK
GV
GH
RV
RH
BV
BH
RV9
RV8
RV7
RV6
RV5
RV15
RV14
RV13
RV12
RV11
RV10
RV24
RV23
RV22
RV21
RV20
RV19
RV18
RV17
RV16
RV33
RV32
RV31
RV30
RV29
RV28
RV27
RV26
RV25
RV42
RV41
RV40
RV39
RV38
RV37
RV36
RV35
RV34
RV51
RV50
RV49
RV48
RV47
RV46
RV45
RV44
RV43
TILT-4
TILT-3
TILT-2
TILT-1
BOW
SKEW
L IN
SIZE
CENT
IC9 TILT BUFF
IC10 TILT SW
IC8 HALF H.V
IC13 V.PIN AMP
KEYS GEN IC15
V.PIN GEN IC14
S3 V DC
S1 H DC
S6 MODEL SELECT
S7 SIZE SELECT
IC11 H.LIN BUFF
IC12 V.KEYS BUFF
V.OUT/PROT2 Q20
V.OUT/PROT1 Q19
IC19(2/2)
IC18(2/2)
IC19(1/2)
IC18(1/2)
V.DRIVE-R Q10
V.OUT-R Q11,12
V.DRIVE-G Q7
V.OUT-G Q8,9
V.DRIVE-B Q13
V.OUT-B Q14,15
V.DY(R)
V.DY(G)
V.DY(B)
IC1 SUB OUT DRIVE
V IN
H IN
V SUB OUT Q1,2
H SUB OUT Q3,4
V.OUT
H.OUT
V.RET
H RET
V
H
SUB DY(R)
DB(R)
DB(G)
DB(B)
SUB DY(G)
SUB DY(B)
IC401 REMOTE SW
PROJECTOR S401
VOLUME RV401
BAR S8
DOT S9
B-RAS S10
G-RAS S11
R-RAS S12
PL1
M SW
X
D


A
TO QA BOARD
B
TO QA BOARD
C
TO BA BOARD
L
TO D BOARD
H
TO BA BOARD
E
TO BA BOARD
R BUFFER Q27
G BUFFER Q28
B BUFFER Q29
C.B (R) BUFF Q30, 31
C.B (G) BUFF Q32, 33
B.B BUFF Q1
B.B BUFFER Q38
IC3 REG SW (R, G)
IC4 REG SW (B)
R BUFFER Q13
G BUFFER Q14
B BUFFER Q15
BLK BUFFER Q39
IC5 PIC/BRT CONT
R BUFFER Q2
G BUFFER Q5
B BUFFER Q8
R DRIVE Q3
R RAS SW Q4
G DRIVE Q6
G RAS SW Q7
B DRIVE Q9
B RAS SW Q10
LIMITER Q40
BIAS Q11, 12
SYNC BUFF Q35
-HOT.P
H.P INVERT Q20
H.P INVERT Q16
IC6 (1/4)
IC11 H.PLL
VCO
IC15 (1/4) GATE 1
IC17 (2/2) H BLK
IC12 H COUNTER
IC16 (1/2) GATE 2
IC15 (2/4)
IC15 (3/4)
H.RET.P
H.P BUFFER Q17
COMP SYNC
IC6 (2/4)
SYNC BUFF Q36, 37
IC7 (4/4)
BLK
S1
IC7 (3/4)
IC7 (1/4)
V.RET.P
IC17 (1/2) IV BLK
IC13 V.PLL
VCO
IC18 (2/2) HV BLK
LINE RGB
+15V
+12V REG IC1
+12V
IC15 (4/4) GATE 1
IC14 V COUNTER
IC16 (2/2) GATE 2
IC18 (1/2) V BLK
IC7 (2/4)
60/50
-15V
-12V REG IC2
-12V
-12V PROTE Q41
IC6 (3/4)
PROTE
DOT SW1 Q18
DOT SW2 Q19
IC8 (2/2)
IC9 (1/2)
IC9
PIC ABL Q34
TOTAL ABL Q24
IC10
PEAK ABL Q25
S.T ABL Q26
BB


R BUFFER Q2
R DRIVE Q3
RV1 R.DRIVE
R RAS SW Q4
G BUFFER Q5
G DRIVE Q6
RV2 G.DRIVE
G RAS SW Q7
B BUFFER Q8
B DRIVE Q9
RV3 B.DRIVE
B RAS SW Q10
LIMITER Q40
BIAS Q11, 12
RED
R RAS ON/OFF
GREEN
G RAS ON/OFF
BLUE
B RAS ON/OFF
K TO D BOARD
IC17(2/2) H BLK
IC7 (4/4)
BLK S1
IC7 (3/4)
IC18 (2/2) HV BLK
IC7 (2/4)
IC18 (1/2) V BLK
IC8 (1/2) LEVEL SHIFT
RV4 SUB BRT
BRT
DOT/HATCH
DOT SW1 Q18
DOT SW2 Q19
PIC
IC8 (2/2)
IC9 (1/2)
IK (R)
IK (G)
IK (B)
IC9 (2/2)
PIC ABL Q34
TOTAL ABL Q24
IK (R) BUFF Q21
IK (G) BUFF Q22
IK (B) BUFF Q23
IC10 (2/2)
PEAK ABL Q25
IC10 (1/2)
S.T ABL Q26
J TO E BOARD
F TO QA BOARD
H.DRIVE
PROTECT
PROTECT
-H.RET.P
H DRIVE Q4
T3
SPEED UP D4
CONV Q6
T4
-3V RECT D9
-3V
PROT SW Q8
CURRENT PROT Q5
+230V
+230V RECT D7
+3V RECT D8
+3V
+10V RECT D10
+10V
-10V RECT D11
-10V
V STOPPER D12
V RECT D13
+VB
HEATER
HEATER
+115V
CONV
H DRIVE BUFF Q7
H DRIVE 1 Q3
T2
IC3 (2/2)
IC1 (2/2)
HV PROT SW1 Q9
+115V
IC2 (2/2)
HV PROT SW2 Q10
ABL
Σ IK PROT DET Q12
Σ IK PROT DET Q11
HV REG Q1
T1
HV REG DRIVE Q2
REG BUFFER Q14
IC1 HV. REG CONT
DRIVE
-H.P
PROTECT
OSC
IC1
NF
IN
PB
IC3 (2/2)
IC1 (1/2)
HV REG
IC2 (1/2)
HV PROT
+5V
+12V
G2 CONT Q13
G2
DET
DF
TO D BOARD
-H. PARA
IC4
T5
PA
R VIDEO AMP Q701
R VIDEO OUT Q702
R IK DET 1 Q704
R IK DET 2 Q703
CR
G VIDEO AMP Q721
G VIDEO OUT Q722
G IK DET 1 Q724
G IK DET 2 Q723
CG
B VIDEO AMP Q741
B VIDEO OUT Q742
B IK DET 1 Q744
B IK DET 2 Q743
CB
R CRT
G CRT
B CRT
PC
MV
MV
ABL
CONV
HV.CONV Q1
FOCUS PACK
FR
FG
FB
SR
SG
SB
G2
DET
DF
REG
HV BLOCK
R
G
B
PROT
D1
Y
TO NECK ASSY
TO DEFLECTION YOKE
DY(R)
DY(G)
DY(B)

7-4. FRAME SCHEMATIC DIAGRAM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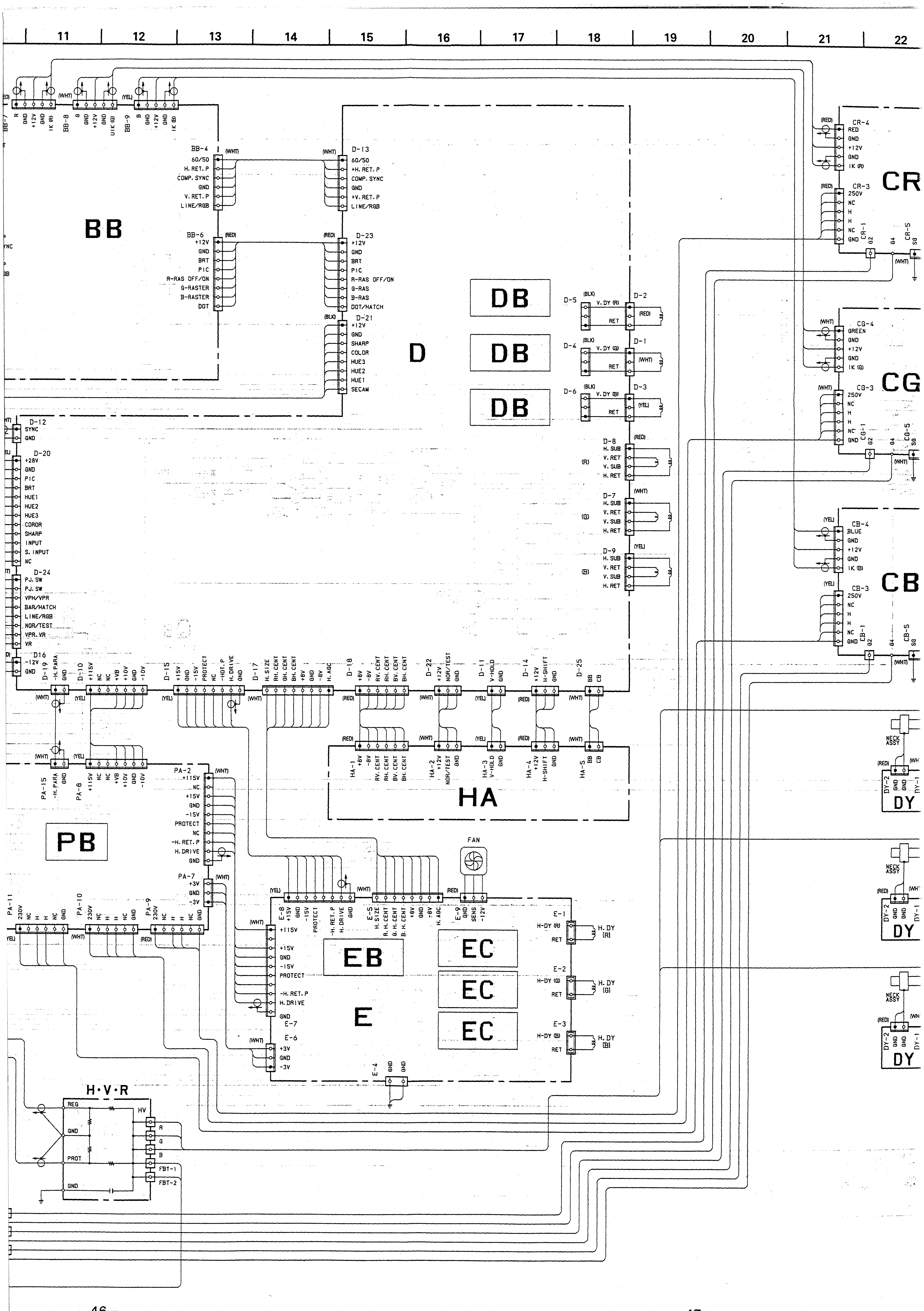
12
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
FAN
FAN
QB
QB-5
AUDIO-OUT
NC
GND
QB-6
GND
SENS
-12V
QB-7
QB-3
RM12V
GND
VPH/VPR
VPR/VPH
LINE/RGB
NOR/TEST
VPR-VR
VR
LINE IN
S VIDEO CNJ201
VIDEO CNJ202
AUDIO CNJ203
MONITOR OUT CNJ204
QB-2
QB-4
QB-1
VOL
+15V
-15V
PROTECT
VIDEO IN
Y. IN
C. IN
VPR. C. IN
MONITOR OUT
YC/VIDEO
QA-7
QA-1
QA-2
VIDEO
QA-3
+28V
POW
PIC
BRT
HUE1
HUE2
HUE3
COLOR
SHARP
INPUT
CNJ6
E
VIDEO
INPUT
SHARP
COLOR
HUE3
HUE2
HUE1
BRT
PIC
VOL
POW
+28V
RGB
RED CNJ1
GREEN CNJ2
BLUE CNJ3
HD/SYNC CNJ4
VD CNJ5
QA
QA-10
QA-5
QA-15
Y/VIDEO
C
QA-14
R
G
B
A
QA-16
SYNC
QA-4
S. INPUT
NC
QA-13
PJ. SW
BAR/HATCH
LINE/RGB
VPR. VR
QA-9
+115V
QA-6
QA-12
QA-8
TK-15
DC+
DC-
FC
FC-1
FA
FA-1
AC-IN (L)
AC-IN (N)
FA-2
FA-3
FA-4
AC IN
N
GND
L
BA
BC
BA-1
BA-3
BA-2
BA-4
BA-5
BA-6
60/50
H. RET. P
COMP. SYNC
V. RET. P
SECAM
BB
BB-1
BB-2
BB-3
BB-5
BB-7
BB-8
BB-9
IK (R)
UIK (G)
D-12
D-20
D-24
D16
D-19
D-10
-H. PARA
Y
Y-1
LED
+12V
X
X-1
X-2
M. SW
PA
PB
PA-1
PA-6
PA-15
PA-8
PA-13
PA-3
REG OUT
ABL
CONV
PA-14
G2
DF
DET
PA-12
PA-5
HV. PROT
PA-4
HV. RED
PA-11
230V
H
PA-10
PC
PC-1
FBT1
FBT2
HV
MV
FOCUS PACK
FOCUS (R)
SCREEN (R)
FOCUS (G)
SCREEN (G)
FOCUS (B)
SCREEN (B)
H·V·R
REG
PROT
(WHT)
(RED)
(YEL)
(BLK)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12
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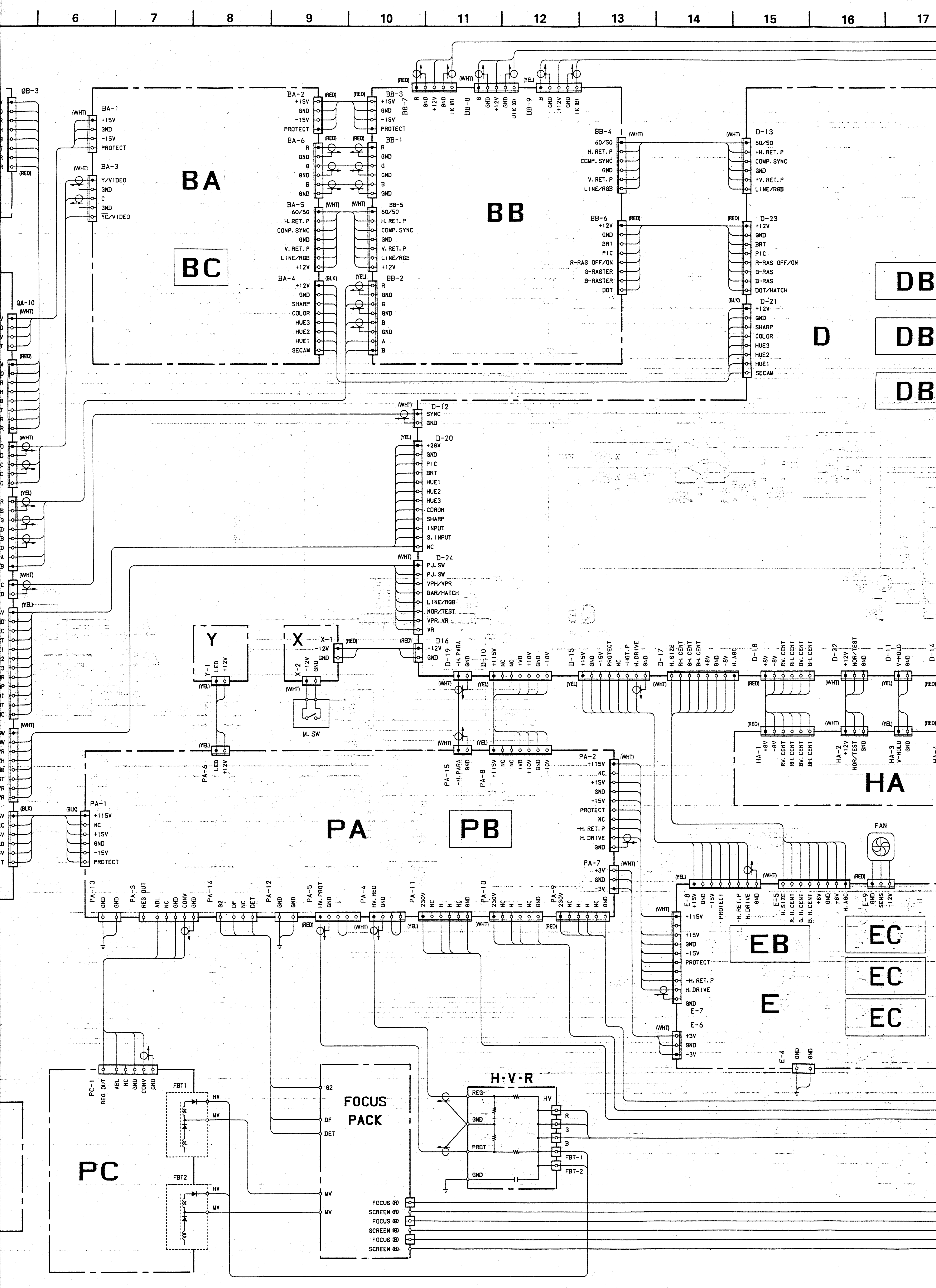
14
15
16
17
18
19
20
21
22
BB
BB-7
R
GND
+12V
GND
IK (R)
BB-8
G
GND
+12V
GND
UIK (G)
BB-9
B
GND
+12V
GND
IK (B)
(WHT)
(YEL)
BB-4
60/50
H. RET. P
COMP. SYNC
GND
V. RET. P
LINE/RGB
D-13
60/50
+H. RET. P
COMP. SYNC
GND
+V. RET. P
LINE/RGB
BB-6
+12V
GND
BRT
PIC
R-RAS OFF/ON
G-RASTER
B-RASTER
DOT
(RED)
D-23
+12V
GND
BRT
PIC
R-RAS OFF/ON
G-RAS
B-RAS
DOT/HATCH
(BLK)
D-21
+12V
GND
SHARP
COLOR
HUE3
HUE2
HUE1
SECAM
D
DB
DB
DB
D-5
V. DY (R)
RET
D-2
D-4
V. DY (G)
D-1
D-6
V. DY (B)
D-3
D-8
H. SUB
V. RET
V. SUB
H. RET
(R)
D-7
(G)
D-9
(B)
D-12
SYNC
GND
D-20
+28V
GND
PIC
BRT
HUE1
HUE2
HUE3
COROR
SHARP
INPUT
S. INPUT
NC
D-24
PJ. SW
PJ. SW
VPH/VPR
BAR/HATCH
LINE/RGB
NOR/TEST
VPR. VR
VR
D16
-12V
GND
D-19
-H. PARA
GND
D-10
+115V
NC
NC
+VB
+10V
GND
-10V
D-15
+15V
GND
-15V
PROTECT
NC
-HOT. P
H. DRIVE
GND
D-17
H. SIZE
RH. CENT
GH. CENT
BH. CENT
+8V
GND
-8V
H. AGC
D-18
+8V
-8V
RV. CENT
RH. CENT
BV. CENT
BH. CENT
D-22
+12V
NOR/TEST
GND
D-11
V-HOLD
GND
D-14
+12V
H-SHIFT
GND
D-25
BB
CB
HA
HA-1
HA-2
HA-3
HA-4
HA-5
PA-15
-H. PARA
GND
PA-8
PA-2
+115V
NC
+15V
GND
-15V
PROTECT
NC
-H. RET. P
H. DRIVE
GND
PB
PA-7
+3V
GND
-3V
PA-11
PA-10
PA-9
230V
NC
H
H
NC
GND
FAN
E-8
+15V
GND
-15V
PROTECT
-H. RET. P
H. DRIVE
GND
E-5
H. SIZE
R. H. CENT
G. H. CENT
B. H. CENT
+8V
GND
-8V
H. AGC
E-9
GND
SENS
-12V
+115V
EB
EC
EC
EC
E
E-7
E-6
+3V
GND
-3V
E-4
GND
GND
E-1
H-DY (R)
RET
H. DY (R)
E-2
H-DY (G)
H. DY (G)
E-3
H-DY (B)
H. DY (B)
H·V·R
REG
GND
PROT
GND
HV
R
G
B
FBT-1
FBT-2
CR
CR-4
RED
GND
+12V
GND
IK (R)
CR-3
250V
NC
H
H
NC
GND
CR-1
G2
G4
CR-5
SG
CG
CG-4
GREEN
GND
+12V
GND
IK (G)
CG-3
CG-1
CG-5
CB
CB-4
BLUE
GND
+12V
GND
IK (B)
CB-3
CB-1
CB-5
NECK ASSY
DY-2
GND
GND
DY-1
DY
DY
DY
(RED)
(WHT)
(YEL)
(BLK)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14
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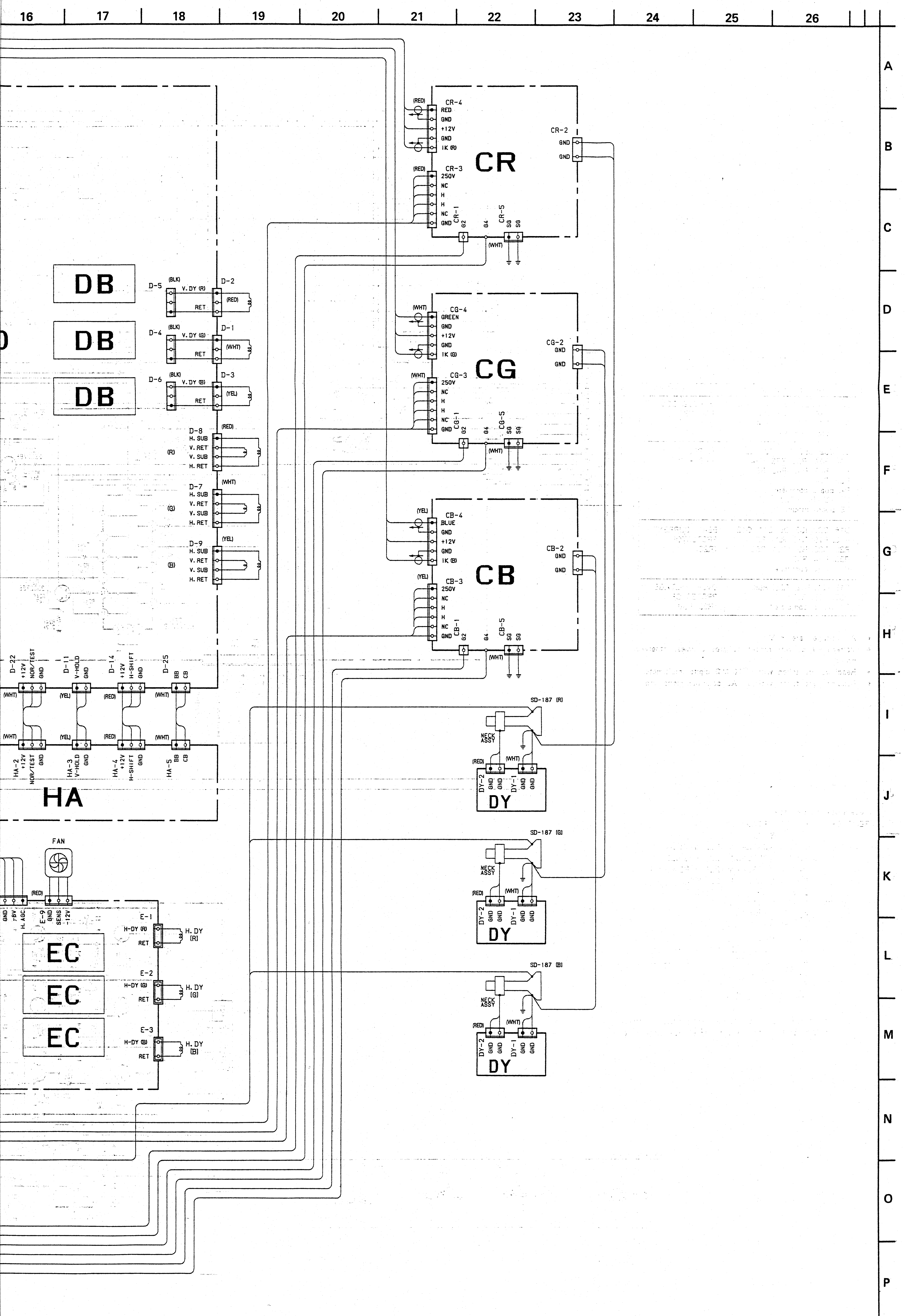
16
17
QB-3
BA-1
+15V
GND
-15V
PROTECT
BA-3
Y/VIDEO
GND
C
GND
YC/VIDEO
BA
BC
BA-2
+15V
GND
-15V
PROTECT
BA-6
R
GND
G
GND
B
GND
BA-5
60/50
H.RET.P
COMP.SYNC
GND
V.RET.P
LINE/RGB
+12V
BA-4
+12V
GND
SHARP
COLOR
HUE3
HUE2
HUE1
SECAM
BB-3
+15V
GND
-15V
PROTECT
BB-1
R
GND
G
GND
B
GND
BB-5
60/50
H.RET.P
COMP.SYNC
GND
V.RET.P
LINE/RGB
+12V
BB-2
R
GND
G
GND
B
GND
A
B
BB-7
R
GND
+12V
GND
IK (R)
BB-8
G
GND
+12V
GND
UIK (G)
BB-9
B
GND
+12V
GND
IK (B)
BB
BB-4
60/50
H.RET.P
COMP.SYNC
GND
V.RET.P
LINE/RGB
BB-6
+12V
GND
BRT
PIC
R-RAS OFF/ON
G-RASTER
B-RASTER
DOT
D-13
60/50
+H.RET.P
COMP.SYNC
GND
+V.RET.P
LINE/RGB
D-23
+12V
GND
BRT
PIC
R-RAS OFF/ON
G-RAS
B-RAS
DOT/HATCH
D-21
+12V
GND
SHARP
COLOR
HUE3
HUE2
HUE1
SECAM
D
DB
DB
DB
QA-10
D-12
SYNC
GND
D-20
+28V
GND
PIC
BRT
HUE1
HUE2
HUE3
COROR
SHARP
INPUT
S.INPUT
NC
D-24
PJ.SW
PJ.SW
VPH/VPR
BAR/HATCH
LINE/RGB
NOR/TEST
VPR.VR
VR
D16
-12V
GND
Y
Y-1
LED
+12V
X
X-1
-12V
GND
X-2
M.SW
D-19
-H.PARA
GND
D-10
+115V
NC
NC
+VB
+10V
GND
-10V
D-15
+15V
GND
-15V
PROTECT
NC
-HOT.P
H.DRIVE
GND
D-17
H.SIZE
RH.CENT
GH.CENT
BH.CENT
+8V
GND
-8V
H.AGC
D-18
+8V
-8V
RV.CENT
RH.CENT
BV.CENT
BH.CENT
D-22
+12V
NOR/TEST
GND
D-11
V-HOLD
GND
D-14
HA-1
+8V
-8V
RV.CENT
RH.CENT
BV.CENT
BH.CENT
HA-2
+12V
NOR/TEST
GND
HA-3
V-HOLD
GND
HA
PA-6
LED
+12V
PA-15
-H.PARA
GND
PA-8
+115V
NC
NC
+VB
+10V
GND
-10V
PA-2
+115V
NC
+15V
GND
-15V
PROTECT
NC
-H.RET.P
H.DRIVE
GND
PA-7
+3V
GND
-3V
PA-1
+115V
NC
+15V
GND
-15V
PROTECT
PA
PB
PA-13
GND
GND
PA-3
REG OUT
ABL
NC
GND
CONV
GND
PA-14
G2
DF
NC
DET
PA-12
GND
GND
PA-5
HV.PROT
GND
PA-4
HV.RED
GND
PA-11
230V
NC
H
H
NC
GND
PA-10
230V
NC
H
H
NC
GND
PA-9
230V
NC
H
H
NC
GND
FAN
E-8
+115V
GND
+15V
GND
-15V
PROTECT
-H.RET.P
H.DRIVE
GND
E-5
H.SIZE
R.H.CENT
G.H.CENT
B.H.CENT
+8V
GND
-8V
H.AGC
E-9
GND
SENS
-12V
EB
EC
EC
EC
E
E-7
E-6
+3V
GND
-3V
E-4
GND
GND
PC-1
REG OUT
ABL
NC
GND
CONV
GND
FBT1
HV
MV
FBT2
HV
MV
PC
G2
DF
DET
FOCUS PACK
MV
MV
FOCUS (R)
SCREEN (R)
FOCUS (G)
SCREEN (G)
FOCUS (B)
SCREEN (B)
H·V·R
REG
GND
PROT
GND
HV
R
G
B
FBT-1
FBT-2
(WHT)
(RED)
(YEL)
(BLK)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A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
CR-4
(RED)
RED
GND
+12V
GND
1K (R)
CR
CR-2
GND
GND
CR-3
(RED)
250V
NC
H
H
NC
GND
CR-1
G2
G4
CR-5
SG
SG
(WHT)
DB
DB
DB
D-5
(BLK)
V. DY (R)
RET
D-2
(RED)
D-4
(BLK)
V. DY (G)
RET
D-1
(WHT)
D-6
(BLK)
V. DY (B)
RET
D-3
(YEL)
D-8
(RED)
H. SUB
V. RET
V. SUB
H. RET
(R)
D-7
(WHT)
H. SUB
V. RET
V. SUB
H. RET
(G)
D-9
(YEL)
H. SUB
V. RET
V. SUB
H. RET
(B)
CG-4
(WHT)
GREEN
GND
+12V
GND
1K (G)
CG
CG-2
GND
GND
CG-3
(WHT)
250V
NC
H
H
NC
GND
CG-1
G2
G4
CG-5
SG
SG
(WHT)
CB-4
(YEL)
BLUE
GND
+12V
GND
1K (B)
CB
CB-2
GND
GND
CB-3
(YEL)
250V
NC
H
H
NC
GND
CB-1
G2
G4
CB-5
SG
SG
(WHT)
D-22
+12V
NOR/TEST
GND
D-11
V-HOLD
GND
D-14
+12V
H-SHIFT
GND
D-25
BB
CB
(WHT)
(YEL)
(RED)
(WHT)
(WHT)
(YEL)
(RED)
(WHT)
HA-2
+12V
NOR/TEST
GND
HA-3
V-HOLD
GND
HA-4
+12V
H-SHIFT
GND
HA-5
BB
CB
HA
SD-187 (R)
NECK ASSY
(RED)
(WHT)
DY-2
GND
GND
DY-1
GND
GND
DY
SD-187 (G)
NECK ASSY
(RED)
(WHT)
DY-2
GND
GND
DY-1
GND
GND
DY
SD-187 (B)
NECK ASSY
(RED)
(WHT)
DY-2
GND
GND
DY-1
GND
GND
DY
FAN
(RED)
GND
7.8V
H. AGC
E-9
GND
SENS
-12V
E-1
H-DY (R)
RET
H. DY (R)
E-2
H-DY (G)
RET
H. DY (G)
E-3
H-DY (B)
RET
H. DY (B)
EC
EC
EC

7-5. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS – *Conductor Side* –

Note :

- All capacitors are in µF unless otherwise noted.
  pF : µµF 50 WV or less are not indicated except for electrolytics.
- Indication of resistance, which does not have one for rating electrical power is as follows.

Pitch : 5 mm Rating electrical power 1/4W

- All resistors are in ohms.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- △ : internal component.
- ▭ : panel designation.
- The components identified by ⊠ in this basic schematic diagram have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- When replacing components identified by ◪, make the necessary adjustments indicated. If results do not meet the specified value, change the component identified by ⊠ and repeat the adjustment until the specified value is achieved. (Refer to R23, R38, R39, R48, R49, R88 and R89 adjust on page 26 – 28.)
- When replacing the part in below table be sure to perform the related adjustment.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

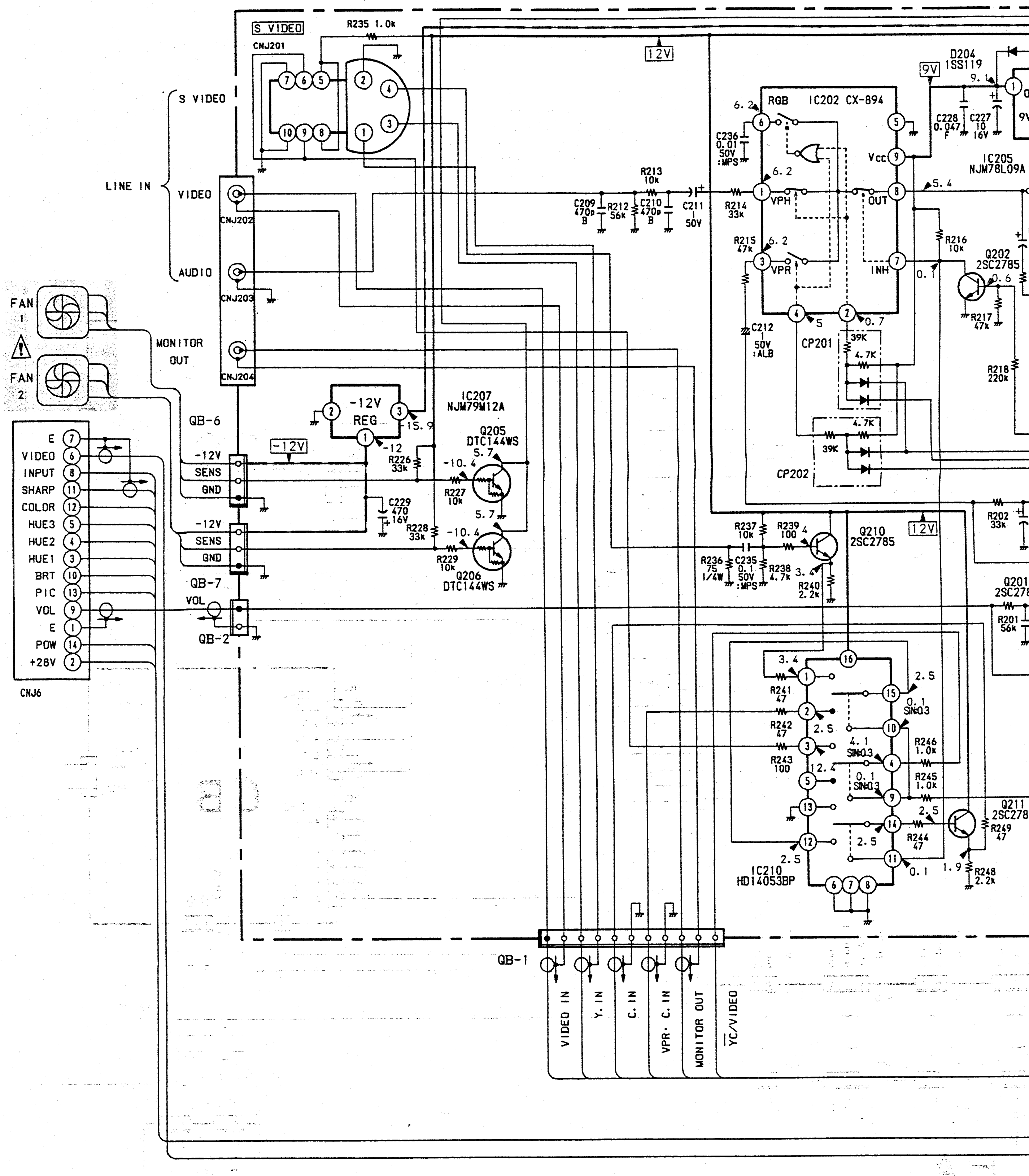
Part replaced (◪)	Adjustment (⊠)
C30, D16, D22, IC2, Q10, R15, R35, R36, R37, R38, R39, R40, R41, R42, R43, R44 PA board complete	HV HOLD DOWN (R38, R39)
C3, C39, C56, D17, IC1, L2, Q14, R31, R32, R33, R34, R46, R47, R48, R49, R82, R83, R84 PA board complete IC1, R3, R4, R7, R14 PB board mount	HV REG (R48, R49)
D15, D20, IC3, Q9, Q11, Q12, R16, R18, R19, R20, R21, R22, R23, R50, R51, R52, R53, R54, R69 PA board complete	BEAM CURRENT PROTECTOR (R23)
D18, IC1, R18, R85, R86, R87, R88, R89 PA board complete	OVER VOLTAGE PROTECTOR (R88, R89)

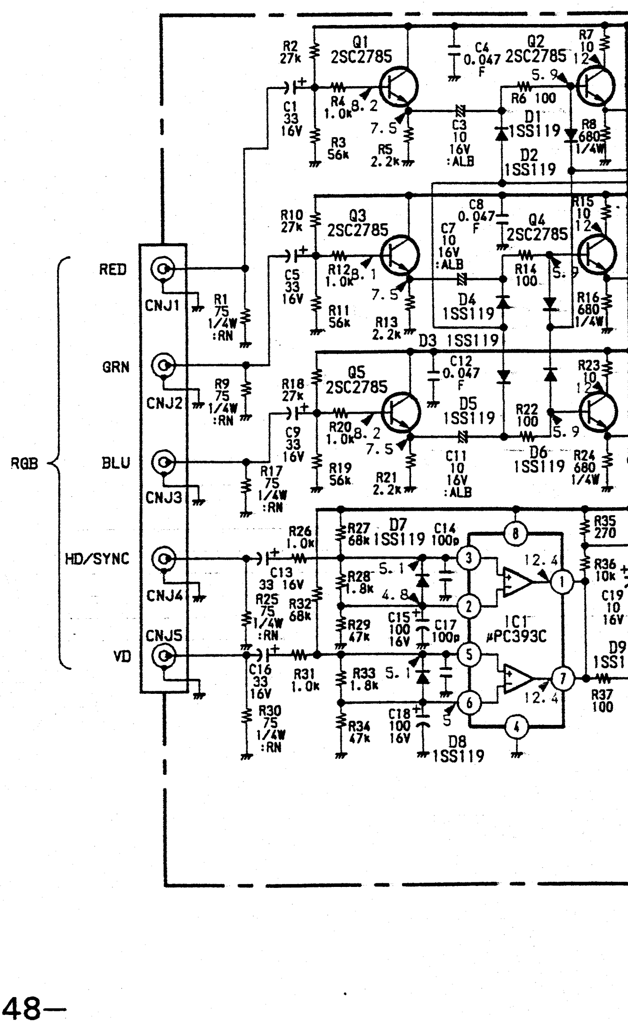
- All voltages are in V.
- Voltage are dc with respect to ground unless otherwise noted.
- Readings are taken with a 10 MΩ digital multimeter.
- Readings are taken with a PAL color-bar signal input.
- ▭ : adjustment for repair.
- Voltage variations may be noted due to normal production tolerance.
- No mark : PAL mode.
- ( ) : SECAM mode.
- 〈 〉 : NTSC 3.58 mode.
- 《 》 : NTSC 4.43 mode.
- ▬▬ : B+ bus.
- ▬ ▬ : B– bus.

Reference information

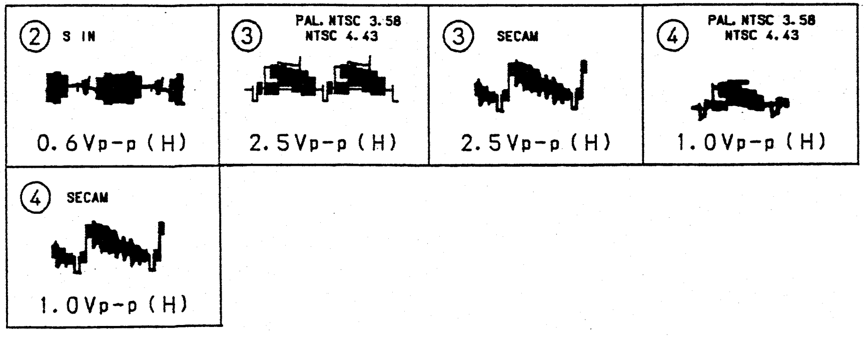
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE WIREWOUND
	: RB	NONFLAMMABLE CEMENT
COIL	: LF-8L	MICRO INDUCTOIR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED PORYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

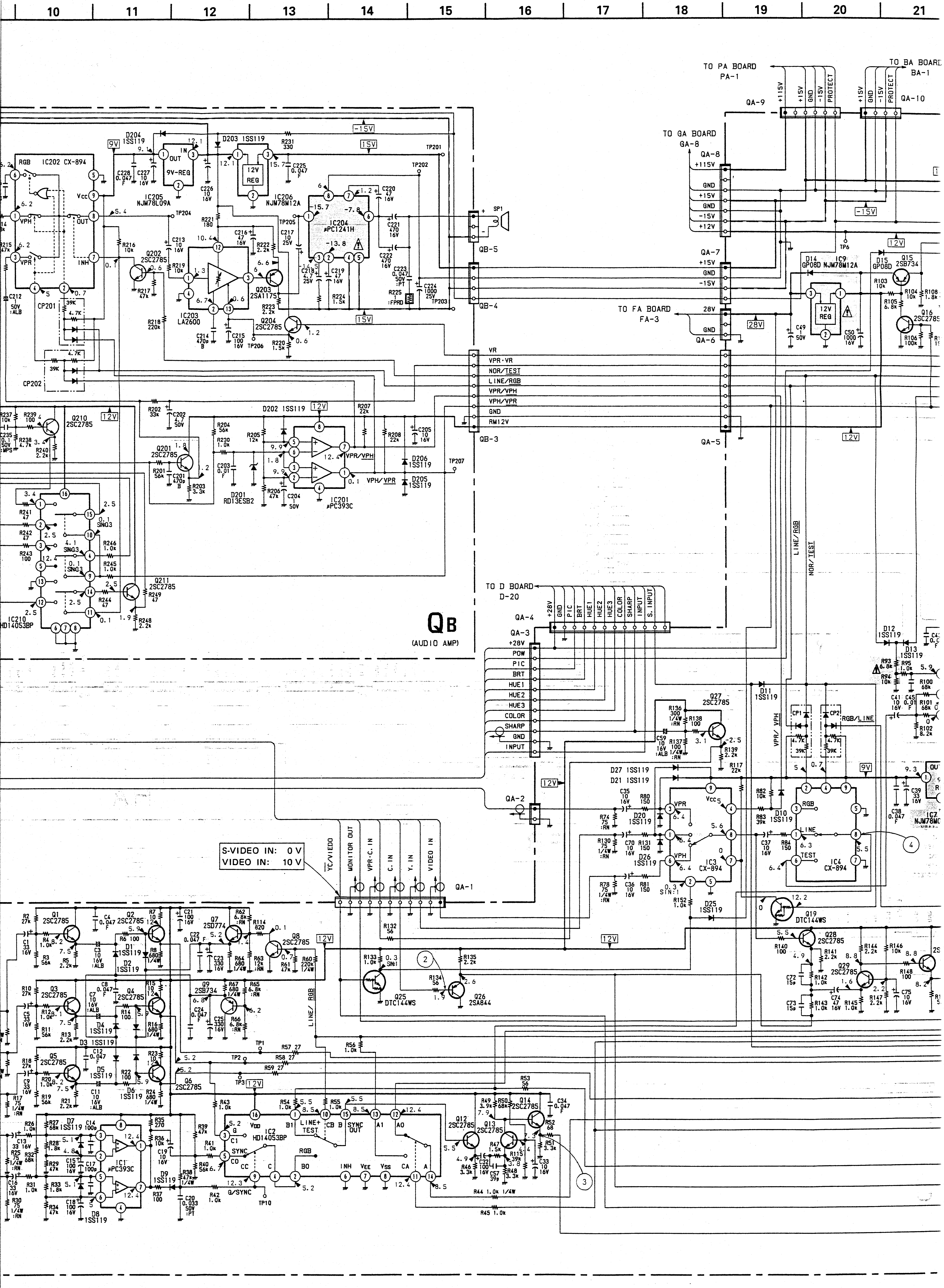
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

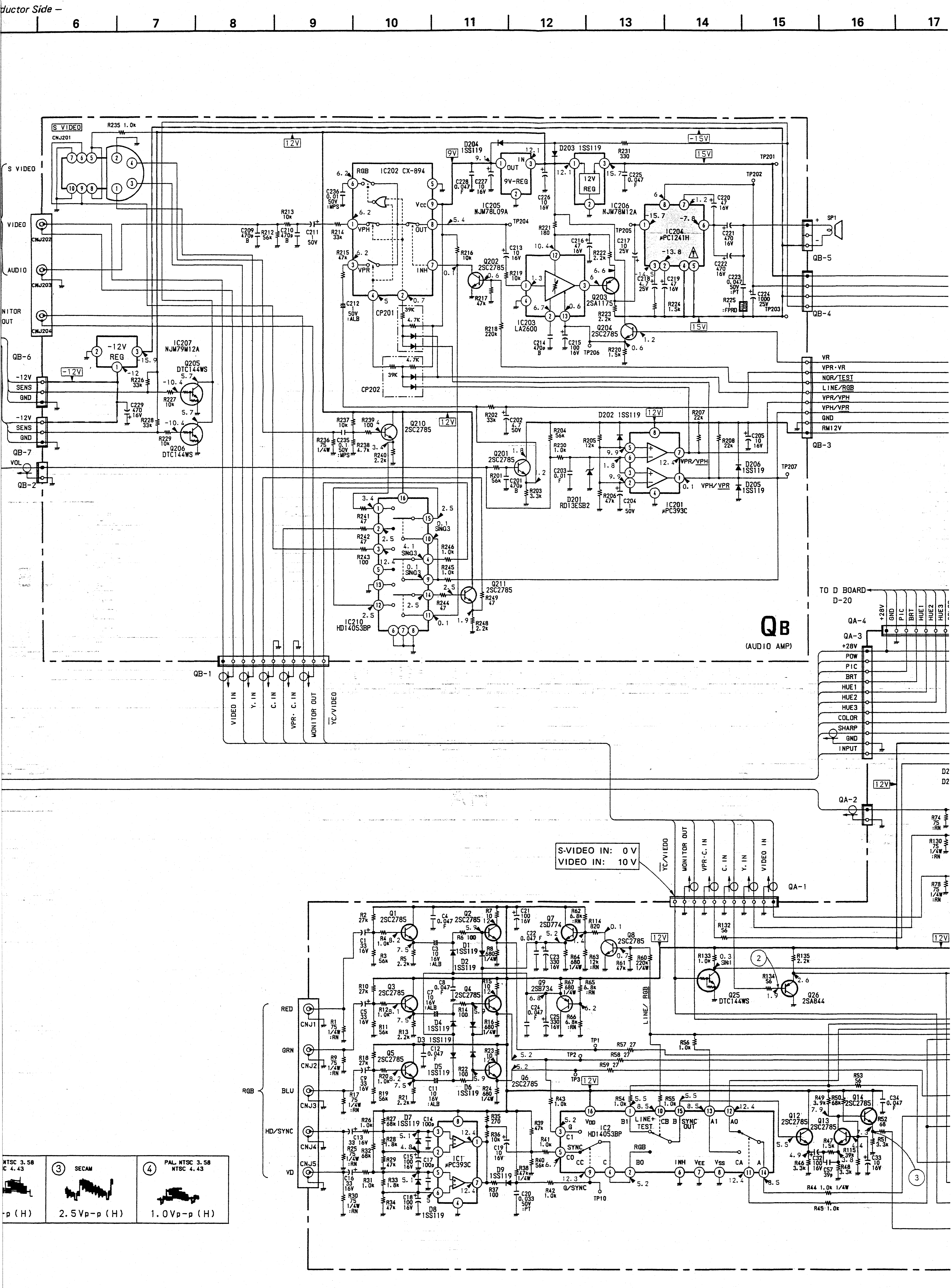

S VIDEO
R235 1.0k
CNJ201
LINE IN
S VIDEO
VIDEO
AUDIO
CNJ202
CNJ203
CNJ204
MONITOR OUT
FAN 1
FAN 2
12V
9V
D204 1SS119
RGB IC202 CX-894
Vcc
VPH
VPR
OUT
INH
IC205 NJM78L09A
Q202 2SC2785
CP201
CP202
-12V REG
IC207 NJM79M12A
Q205 DTC144WS
Q206 DTC144WS
QB-6
QB-7
QB-2
-12V
SENS
GND
VOL
E
VIDEO
INPUT
SHARP
COLOR
HUE3
HUE2
HUE1
BRT
PIC
POW
+28V
CNJ6
Q210 2SC2785
Q201
Q211 2SC2785
IC210 HD14053BP
QB-1
VIDEO IN
Y. IN
C. IN
VPR. C. IN
MONITOR OUT
YC/VIDEO

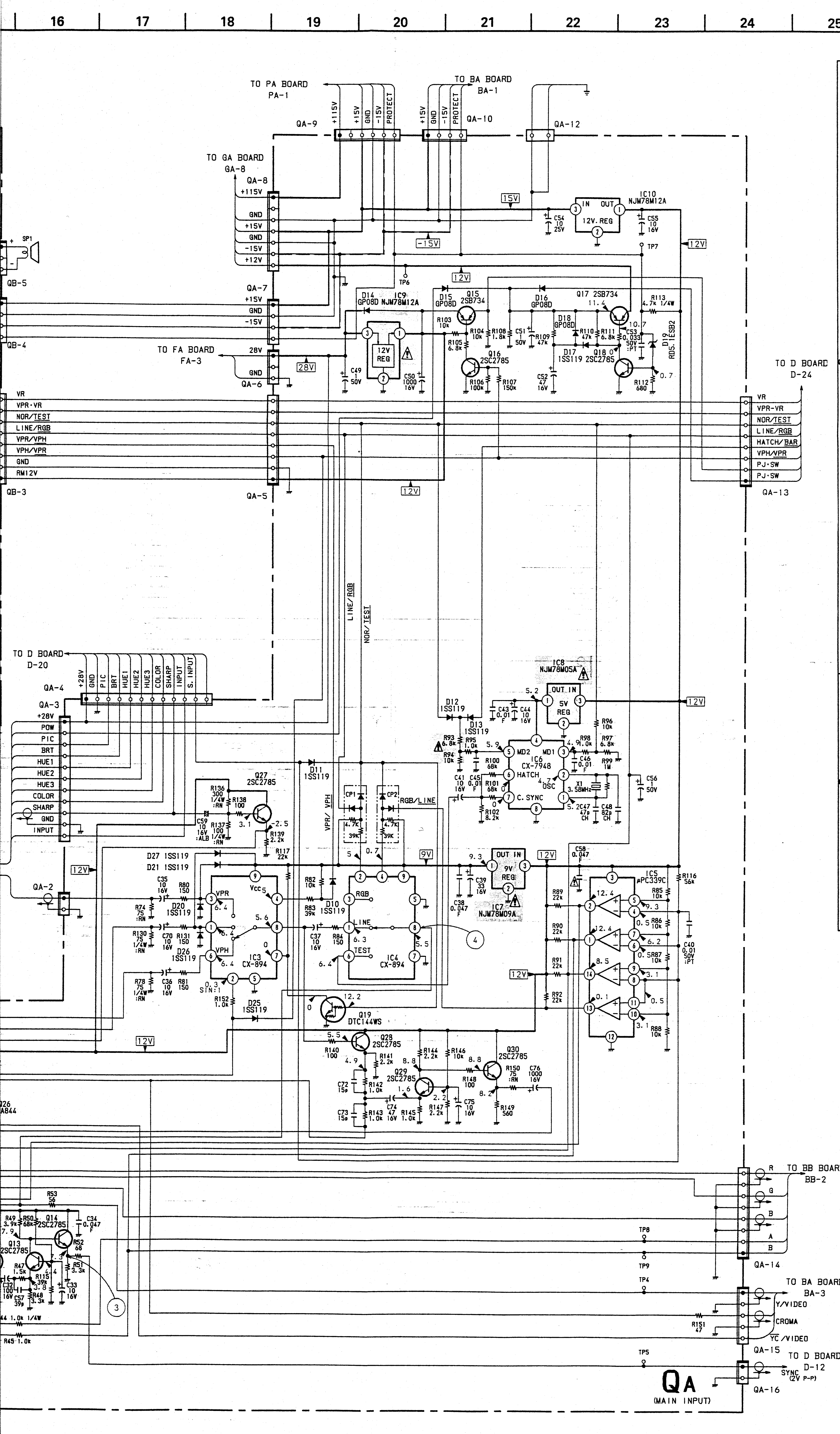

Q1 2SC2785
Q2 2SC2785
Q3 2SC2785
Q4 2SC2785
Q5 2SC2785
RED
GRN
BLU
RGB
HD/SYNC
VD
CNJ1
CNJ2
CNJ3
CNJ4
CNJ5
IC1 µPC393C
D1 1SS119
D2 1SS119
D3 1SS119
D4 1SS119
D5 1SS119
D6 1SS119
D7 1SS119
D8 1SS119

QA Board




10
11
12
13
14
15
16
17
18
19
20
21
TO PA BOARD
PA-1
TO BA BOARD
BA-1
QA-9
QA-10
+115V
+15V
GND
-15V
PROTECT
TO GA BOARD
GA-8
QA-8
QA-7
QA-6
QA-5
TO FA BOARD
FA-3
28V
12V
-15V
15V
9V
IC202 CX-894
IC205 NJM78L09A
9V-REG
IC206 NJM78M12A
12V REG
IC204 μPC1241H
IC203 LA2600
IC201 μPC393C
IC210 HD14053BP
D204 1SS119
D203 1SS119
D202 1SS119
D201 RD13ESB2
D206 1SS119
D205 1SS119
Q201 2SC2785
Q202 2SC2785
Q203 2SA1175
Q204 2SC2785
Q210 2SC2785
Q211 2SC2785
SP1
QB-5
QB-4
QB-3
CP201
CP202
VR
VPR·VR
NOR/TEST
LINE/RGB
VPR/VPH
VPH/VPR
GND
RM12V
QB
(AUDIO AMP)
TO D BOARD
D-20
QA-4
QA-3
+28V
POW
PIC
BRT
HUE1
HUE2
HUE3
COLOR
SHARP
INPUT
S.INPUT
QA-2
QA-1
S-VIDEO IN: 0 V
VIDEO IN: 10 V
YC/VIEDO
MONITOR OUT
VPR·C.IN
C.IN
Y.IN
VIDEO IN
IC3 CX-894
IC4 CX-894
IC7 NJM78M
IC9 NJM78M12A
D14 GP08D
D15 GP08D
Q15 2SB734
Q16 2SC2785
D12 1SS119
D13 1SS119
D11 1SS119
Q27 2SC2785
D27 1SS119
D21 1SS119
D20 1SS119
D26 1SS119
D10 1SS119
D25 1SS119
CP1
CP2
RGB/LINE
Q19 DTC144WS
Q28 2SC2785
Q29 2SC2785
Q1 2SC2785
Q2 2SC2785
Q3 2SC2785
Q4 2SC2785
Q5 2SC2785
Q6 2SC2785
Q7 2SD774
Q8 2SC2785
Q9 2SB734
Q12 2SC2785
Q13 2SC2785
Q14 2SC2785
Q25 DTC144WS
Q26 2SA844
IC1 μPC393C
IC2 HD14053BP
D1 1SS119
D2 1SS119
D3 1SS119
D4 1SS119
D5 1SS119
D6 1SS119
D7 1SS119
D8 1SS119
D9 1SS119
LINE/RGB
NOR/TEST
VPR/VPH
LINE+TEST
CB B
SYNC OUT
G/SYNC
TP1
TP2
TP3
TP10
②
③
④


6
7
8
9
10
11
12
13
14
15
16
17
S VIDEO
CNJ201
R235 1.0k
VIDEO
CNJ202
AUDIO
CNJ203
NITOR
OUT
CNJ204
QB-6
-12V
SENS
GND
QB-7
VOL
QB-2
-12V
REG
IC207
NJM79M12A
Q205
DTC144WS
Q206
DTC144WS
12V
RGB
IC202 CX-894
VPH
VPR
OUT
INH
Vcc
CP201
CP202
D204
1SS119
9V
IC205
NJM78L09A
9V-REG
D203 1SS119
12V
REG
IC206
NJM78M12A
-15V
15V
TP201
TP202
IC204
μPC1241H
SP1
QB-5
QB-4
Q202
2SC2785
IC203
LA2600
Q203
2SA1175
Q204
2SC2785
VR
VPR·VR
NOR/TEST
LINE/RGB
VPR/VPH
VPH/VPR
GND
RM12V
QB-3
Q210
2SC2785
Q201
2SC2785
D202 1SS119
IC201
μPC393C
D201
RD13ESB2
D206
1SS119
D205
1SS119
TP207
IC210
HD14053BP
Q211
2SC2785
QB
(AUDIO AMP)
QB-1
VIDEO IN
Y.IN
C.IN
VPR·C.IN
MONITOR OUT
YC/VIDEO
TO D BOARD
D-20
QA-4
+28V
GND
PIC
BRT
HUE1
HUE2
HUE3
QA-3
POW
COLOR
SHARP
INPUT
QA-2
12V
S-VIDEO IN: 0V
VIDEO IN: 10V
QA-1
Q1
2SC2785
Q2
2SC2785
Q3
2SC2785
Q4
2SC2785
Q5
2SC2785
Q6
2SC2785
Q7
2SD774
Q8
2SC2785
Q9
2SB734
Q25
DTC144WS
Q26
2SA844
RED
GRN
BLU
HD/SYNC
VD
RGB
CNJ1
CNJ2
CNJ3
CNJ4
CNJ5
IC1
μPC393C
IC2
HD14053BP
LINE/RGB
LINE+TEST
SYNC OUT
G/SYNC
TP1
TP2
TP3
TP10
Q12
2SC2785
Q13
2SC2785
Q14
2SC2785
NTSC 3.58
C 4.43
-p (H)
③ SECAM
2.5Vp-p (H)
④ PAL NTSC 3.58
NTSC 4.43
1.0Vp-p (H)


16
17
18
19
20
21
22
23
24
25
26
TO PA BOARD
PA-1
+115V
+15V
GND
-15V
PROTECT
QA-9
TO BA BOARD
BA-1
QA-10
QA-12
TO GA BOARD
GA-8
QA-8
QA-7
QA-6
QA-5
QA-4
QA-3
QA-2
TO FA BOARD
FA-3
28V
SP1
QB-5
QB-4
QB-3
VR
VPR-VR
NOR/TEST
LINE/RGB
VPR/VPH
VPH/VPR
GND
RM12V
IC10
NJM78M12A
12V. REG
IC9
NJM78M12A
12V REG
TP6
TP7
D14 GP08D
D15 GP08D
Q15 2SB734
D16 GP08D
Q17 2SB734
D18 GP08D
D17 1SS119
Q18 2SC2785
Q16 2SC2785
D19 RD5.1ESB2
TO D BOARD
D-24
HATCH/BAR
PJ·SW
QA-13
TO D BOARD
D-20
+28V
PIC
BRT
HUE1
HUE2
HUE3
COLOR
SHARP
INPUT
S. INPUT
POW
IC8
NJM78M05A
5V REG
IC6
CX-7948
HATCH
OSC
C. SYNC
X1 3.58MHz
D11 1SS119
D12 1SS119
D13 1SS119
Q27
2SC2785
D27 1SS119
D21 1SS119
D20 1SS119
D26 1SS119
D25 1SS119
IC3
CX-894
VPR
VPH
SIN:1
D10 1SS119
IC4
CX-894
RGB
LINE
TEST
RGB/LINE
CP1
CP2
IC7
NJM78M09A
9V REG
IC5
μPC339C
Q19
DTC144WS
Q28
2SC2785
Q29
2SC2785
Q30
2SC2785
Q26
2SA844
Q13
2SC2785
Q14
2SC2785
TP8
TP9
TP4
TP5
TO BB BOARD
BB-2
R
G
B
A
QA-14
TO BA BOARD
BA-3
Y/VIDEO
CROMA
YC/VIDEO
QA-15
TO D BOARD
D-12
SYNC
(2V P-P)
QA-16
QA
(MAIN INPUT)
③
④

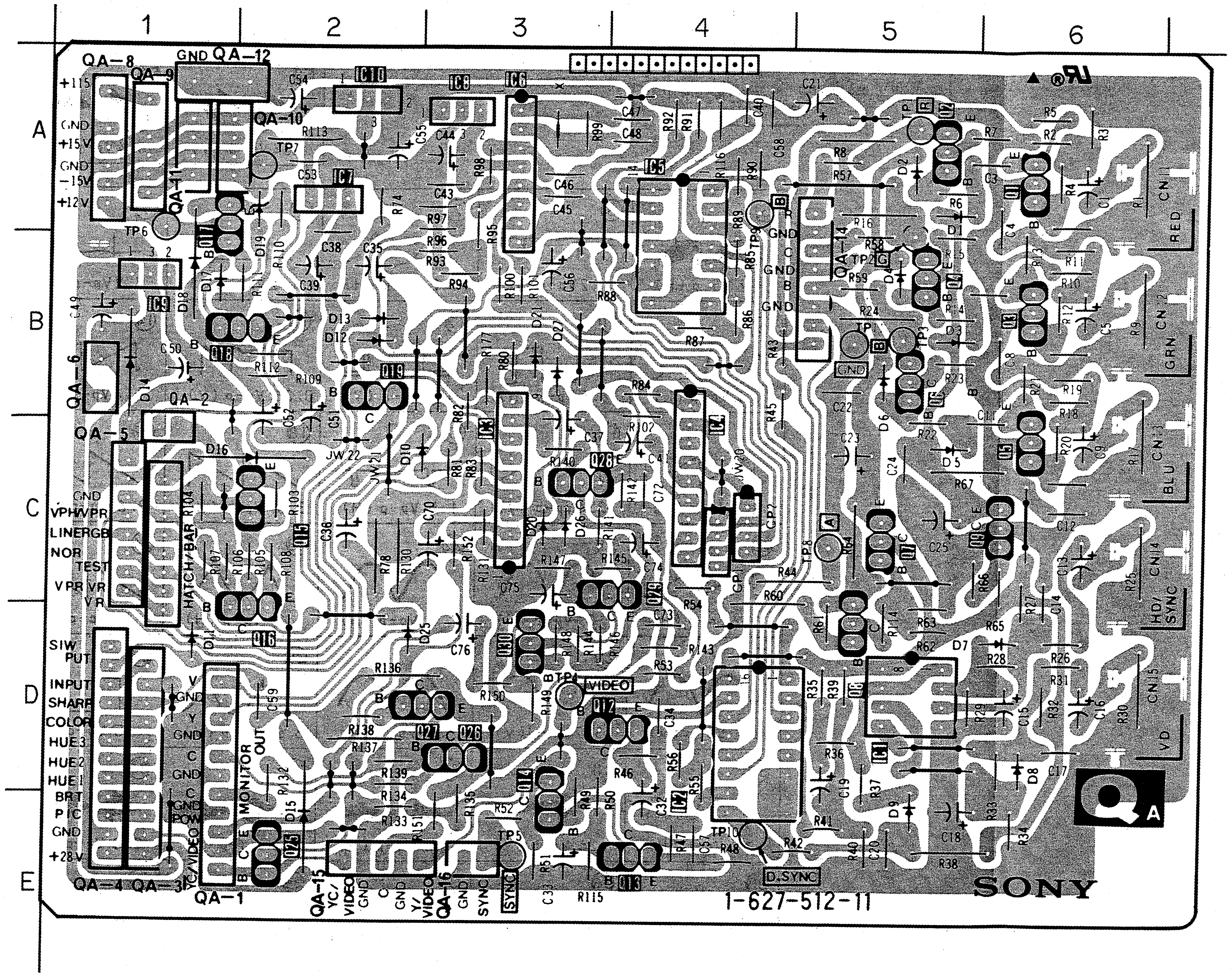
	IC 1	UPC393C	SYNC MIX
	2	HD14053BP	MODE CONT.
	3	CX-894	LINE. SW
	4	CX-894	TEST. SW
	5	UPC339C	MODE DISCRI.
	6	CX-7948	HATCH GEN.
	7	NJM78M09A	9V REG
	8	NJM78M05A	5V REG
	9	NJM78M12A	RM 12V REG
	10	NJM78M12A	12V REG
	Q 1	2SC2785	R. BUFF
	2	2SC2785	R. OUT
	3	2SC2785	G. BUFF
	4	2SC2785	G. OUT
	5	2SC2785	B. BUFF
	6	2SC2785	B. OUT
	7	2SD774	LIMIT BUFF
	8	2SC2785	RGB BLK
	9	2SB734	CLAMP BUFF
	12	2SC2785	SYNC BUFF
	13	2SC2785	SYNC AMP
	14	2SC2785	SYNC OUT
	15	2SB734	VPH SW
	16	2SC2785	VPH DRIVE
	17	2SB734	SW REG SW
	18	2SC2785	ON HOLD SW
	19	DTC144WS	TEST SW
	25	DTC144WS	YC/V SW
QA	26	2SA844	CROMA BUFF-1
	27	2SC2785	CROMA BUFF-2
	28	2SC2785	Y BUFF
	29	2SC2785	YC AMP
	30	2SC2785	M VIDEO BUFF
	D 1	1SS119	R. CLAMP
	2	1SS119	R. LIMIT
	3	1SS119	G. CLAMP
	4	1SS119	G. LIMIT
	5	1SS119	B. CLAMP
	6	1SS119	B. LIMIT
	7	1SS119	HD. CLAMP
	8	1SS119	VD. CLAMP
	9	1SS119	SYNC DICRI.
	10	1SS119	VIDEO SW
	11	1SS119	TEST SW
	12	1SS119	HATCH SW
	13	1SS119	BAR SW
	14	V06C	REG PROTECT
	15	V06C	VPR POWER
	16	V06C	VPH POWER
	17	1SS119	KICK
	18	V06C	SET UP
	19	RD5. 1ESB2	PROTECT. BIAS
	20	1SS119	PROT-1
	21	1SS119	PROT-2
	25	1SS119	VPR SW
	26	1SS119	PROT-3
	27	1SS119	PROT-4
	IC 201	UPC393C	VPR DISCRI.
	202	CX-894	AUDIO SW
	203	LA2600	VOL CONT.
	204	UPC1241H	AUDIO AMP
	205	NJM78L09A	9V REG
	206	NJM78M12A	12V REG
	207	NJM78M12A	-12V REG
	210	HD14053BP	VPR SW
	Q 201	2SC2785	AUDIO BUFF
QB	202	2SC2785	AUDIO INH.
	203	2SA1175	AUDIO INV.
	204	2SA1175	VR BUFF.
	205	DTC144WS	FAN SENS-1
	206	DTC144WS	FAN SENS-2
	210	2SC2785	C BUFF-1
	211	2SC2785	C BUFF-2
	D 201	RD13ESB2	PROTECT-1
	202	1SS119	PROTECT-2
	203	1SS119	PROTECT-3
	204	1SS119	PROTECT-4
	205	1SS119	PROTECT-5
	206	1SS119	PROTECT-6

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

QA [REG, MAIN INPUT]

QB [AUDIO AMP]

– QA Board –


1
2
3
4
5
6
A
B
C
D
E
QA-8
QA-9
GND QA-12
QA-10
QA-11
QA-6
QA-2
QA-5
QA-4 QA-3
QA-1
QA-15
QA-16
QA-14
+115
GND
+15V
GND
-15V
+12V
GND
VPH/VPR
LINERGB
NOR
TEST
VPR VR
VR
SIW
PUT
INPUT
SHARP
COLOR
HUE3
HUE2
HUE1
BRT
PIC
GND
+28V
HATCH/BAR
MONITOR OUT
YC/VIDEO
SYNC
VIDEO
D.SYNC
CN11 RED
CN12 GRN
CN13 BLU
CN14 HD/SYNC
CN15 VD
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
TP1
TP2
TP4
TP5
TP6
TP7
TP8
TP9
TP10
1-627-512-11
SONY
QA

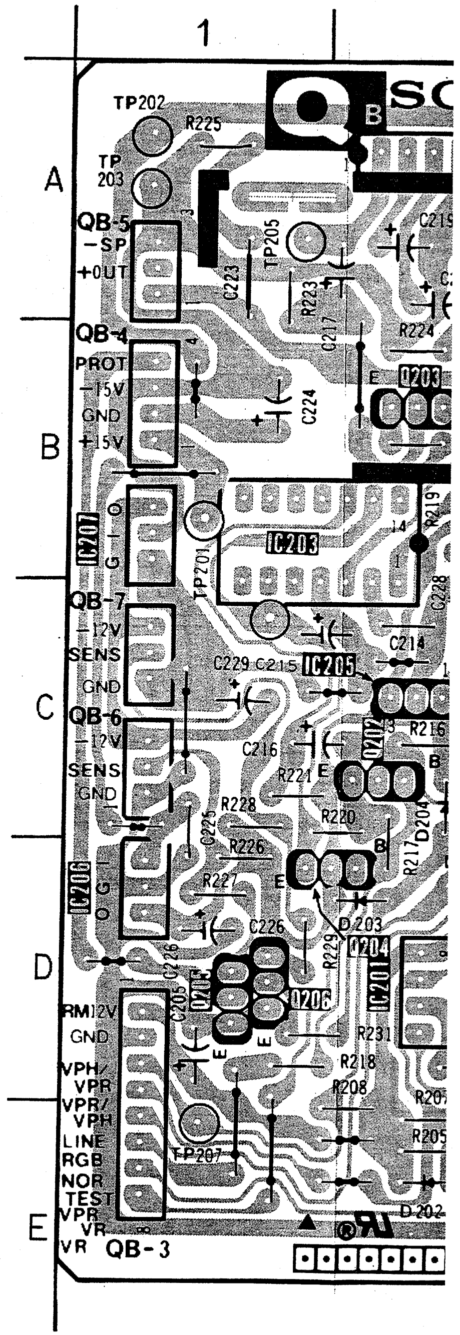
QA Board

IC	
IC1	D-5
IC2	D-4
IC3	C-3
IC4	C-4
IC5	B-4
IC6	A-3
IC7	A-2
IC8	A-3
IC9	B-1
IC10	A-2

TRANSISTOR	
Q1	A-6
Q2	A-5
Q3	B-6
Q4	B-5
Q5	C-6
Q6	B-5
Q7	C-5
Q8	D-5
Q9	C-6
Q12	D-4
Q13	E-4
Q14	E-3
Q15	C-2
Q16	D-2
Q17	A-1
Q18	B-1
Q19	B-2
Q25	E-2
Q26	D-3
Q27	D-3
Q28	C-3
Q29	C-4
Q30	D-3

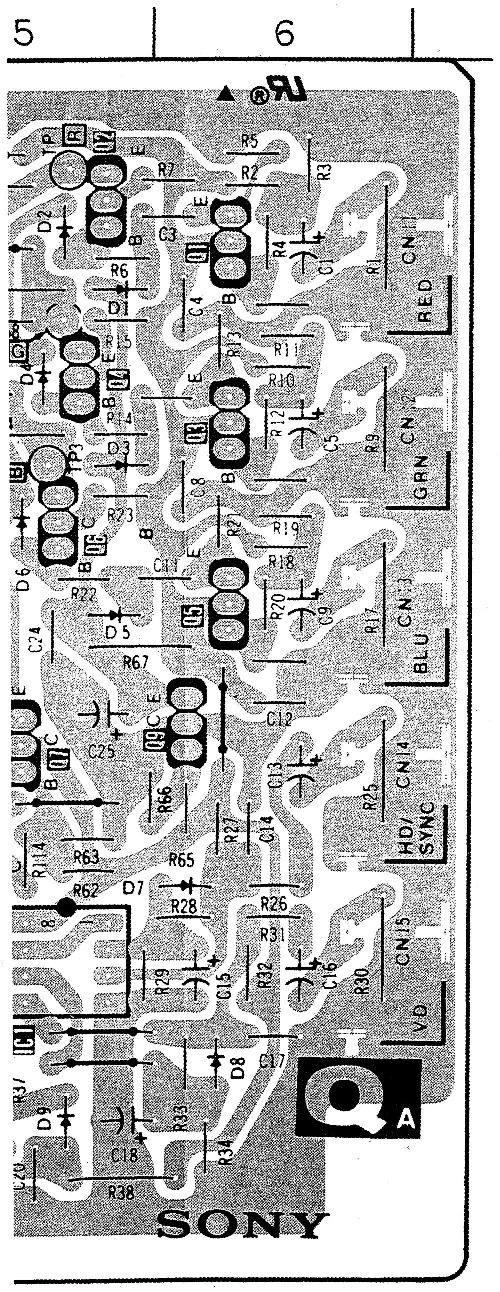
DIODE	
D1	A-5
D2	A-5
D3	B-5
D4	B-5
D5	C-5
D6	B-5
D7	D-6
D8	D-6
D9	E-5
D10	C-2
D11	D-1
D12	B-2
D13	B-2
D14	B-1
D15	E-2
D16	C-2
D17	B-1
D18	B-1
D19	A-2
D20	C-3
D21	D-2
D25	C-3
D26	B-3
D27	C-3

– QB Board –


1
A
B
C
D
E
TP202
TP203
TP205
TP201
TP207
QB-5
-SP
+OUT
QB-4
PROT
-15V
GND
+15V
QB-7
-12V
SENS
GND
QB-6
-12V
SENS
GND
RM12V
GND
VPH/VPR
VPR/VPH
LINE
RGB
NOR
TEST
VPR
VR
QB-3
IC201
IC203
IC205
IC206
QB

IN INPUT]

QB [AUDIO AMP]


5
6
CN1 RED
CN2 GRN
CN3 BLU
CN14 HD/SYNC
CN15 VD
SONY
QA

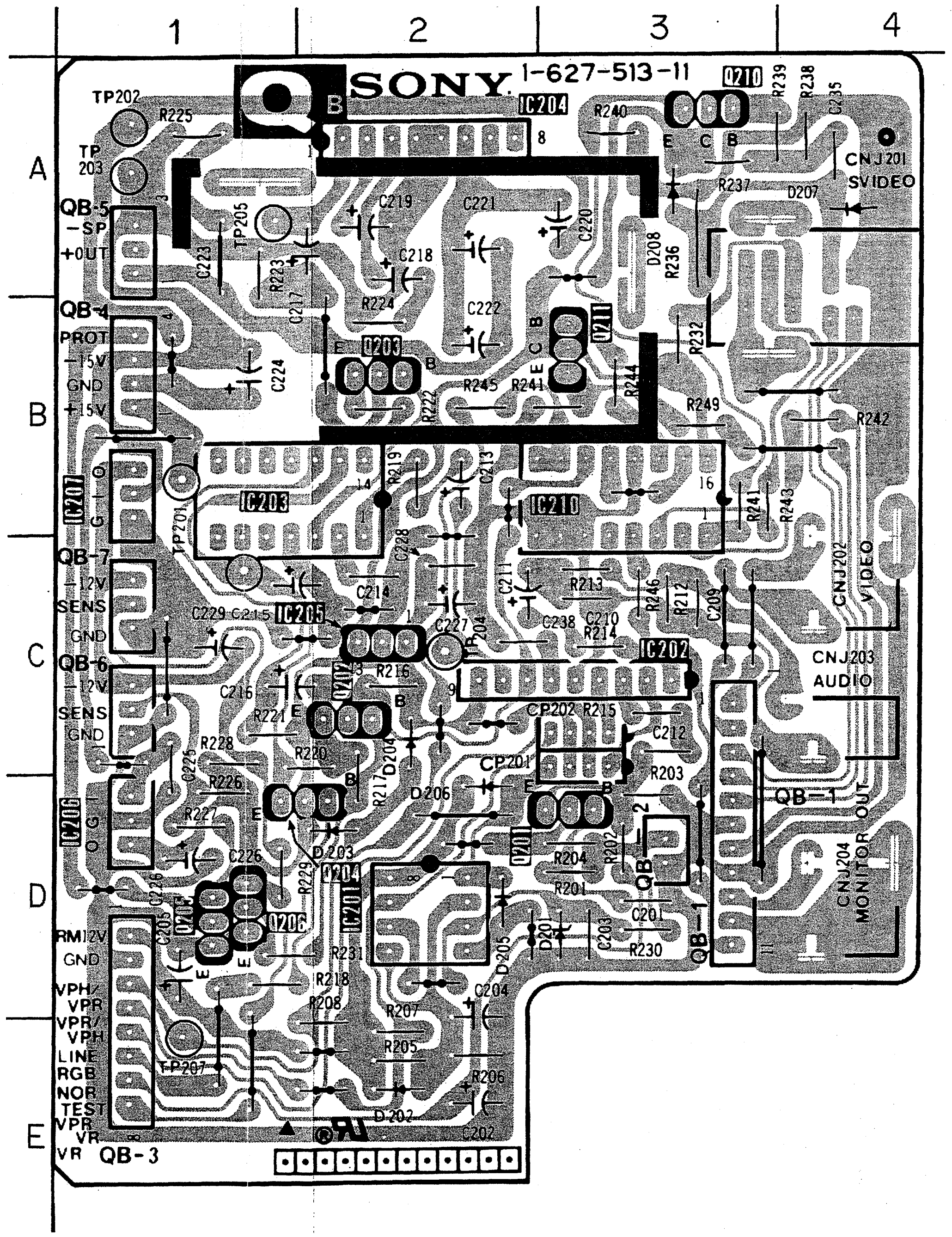
QA Board

IC	
IC1	D-5
IC2	D-4
IC3	C-3
IC4	C-4
IC5	B-4
IC6	A-3
IC7	A-2
IC8	A-3
IC9	B-1
IC10	A-2

TRANSISTOR	
Q1	A-6
Q2	A-5
Q3	B-6
Q4	B-5
Q5	C-6
Q6	B-5
Q7	C-5
Q8	D-5
Q9	C-6
Q12	D-4
Q13	E-4
Q14	E-3
Q15	C-2
Q16	D-2
Q17	A-1
Q18	B-1
Q19	B-2
Q25	E-2
Q26	D-3
Q27	D-3
Q28	C-3
Q29	C-4
Q30	D-3

DIODE	
D1	A-5
D2	A-5
D3	B-5
D4	B-5
D5	C-5
D6	B-5
D7	D-6
D8	D-6
D9	E-5
D10	C-2
D11	D-1
D12	B-2
D13	B-2
D14	B-1
D15	E-2
D16	C-2
D17	B-1
D18	B-1
D19	A-2
D20	C-3
D21	D-2
D25	C-3
D26	B-3
D27	C-3

– QB Board –


1
2
3
4
A
B
C
D
E
SONY 1-627-513-11
QB
TP202
TP203
QB-5 -SP +OUT
QB-4 PROT -15V GND +15V
QB-7 -12V SENS GND
QB-6 -12V SENS GND
RM 12V GND
VPH/VPR VPR/VPH LINE RGB NOR TEST VPR VR
VR QB-3
CNJ201 SVIDEO
CNJ202 VIDEO
CNJ203 AUDIO
CNJ204 MONITOR OUT
QB-1
QB-2
IC201
IC202
IC203
IC204
IC205
IC206
IC207
IC210
Q201
Q202
Q203
Q204
Q205
Q206
Q210
Q211
D201
D202
D203
D204
D205
D206
D207
D208
TP201
TP205
TP207
CP201
CP202

QB Board

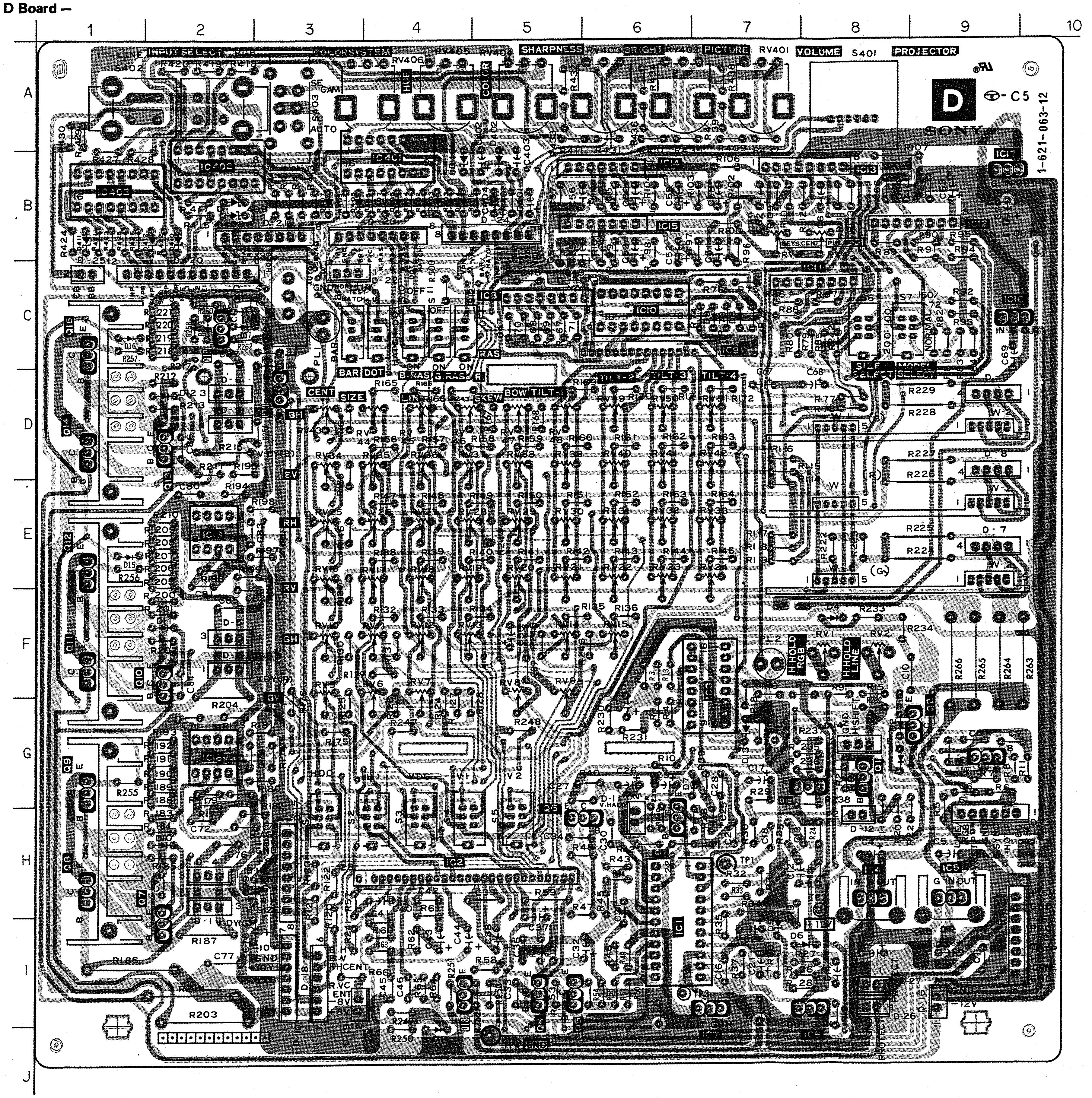
IC	
IC201	D-2
IC202	C-3
IC203	B-1
IC204	A-2
IC205	C-2
IC206	D-1
IC207	B-1
IC210	B-3

TRANSISTOR	
Q201	D-3
Q202	C-2
Q203	B-2
Q204	D-2
Q205	D-1
Q206	D-1
Q210	A-3
Q211	B-3

DIODE	
D201	D-3
D202	E-2
D203	D-2
D204	C-2
D205	D-2
D206	D-2
D207	A-4
D208	A-3

D [R·G·B PROCESSOR
H·V BLK, ABL]

– D Board –


1
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7
8
9
10
A
B
C
D
E
F
G
H
I
J
D
SONY
1-621-063-12
INPUT SELECT
COLOR SYSTEM
SHARPNESS
BRIGHT
PICTURE
VOLUME
PROJECTOR
S401
S402
IC401
IC402
IC403

D Board

IC	
IC1	I-6
IC2	H-4
IC3	F-7
IC4	H-8
IC5	H-9
IC6	I-8
IC7	I-7
IC8	C-5
IC9	C-6
IC10	C-6
IC11	C-8
IC12	B-9
IC13	B-8
IC14	B-6
IC15	B-6
IC16	C-9
IC17	B-9
IC18	G-2
IC19	E-2
IC401	B-4
IC402	B-2
IC403	B-1

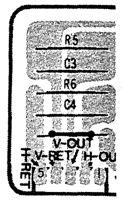
TRANSISTOR	
Q1	G-8
Q2	G-9
Q3	G-9
Q4	I-5
Q5	I-5
Q6	H-6
Q7	I-2
Q8	H-1
Q9	G-1
Q10	F-2
Q11	F-1
Q12	E-1
Q13	D-2
Q14	D-1
Q15	C-1
Q16	G-8
Q17	H-6
Q18	I-4
Q19	C-2
Q20	D-3

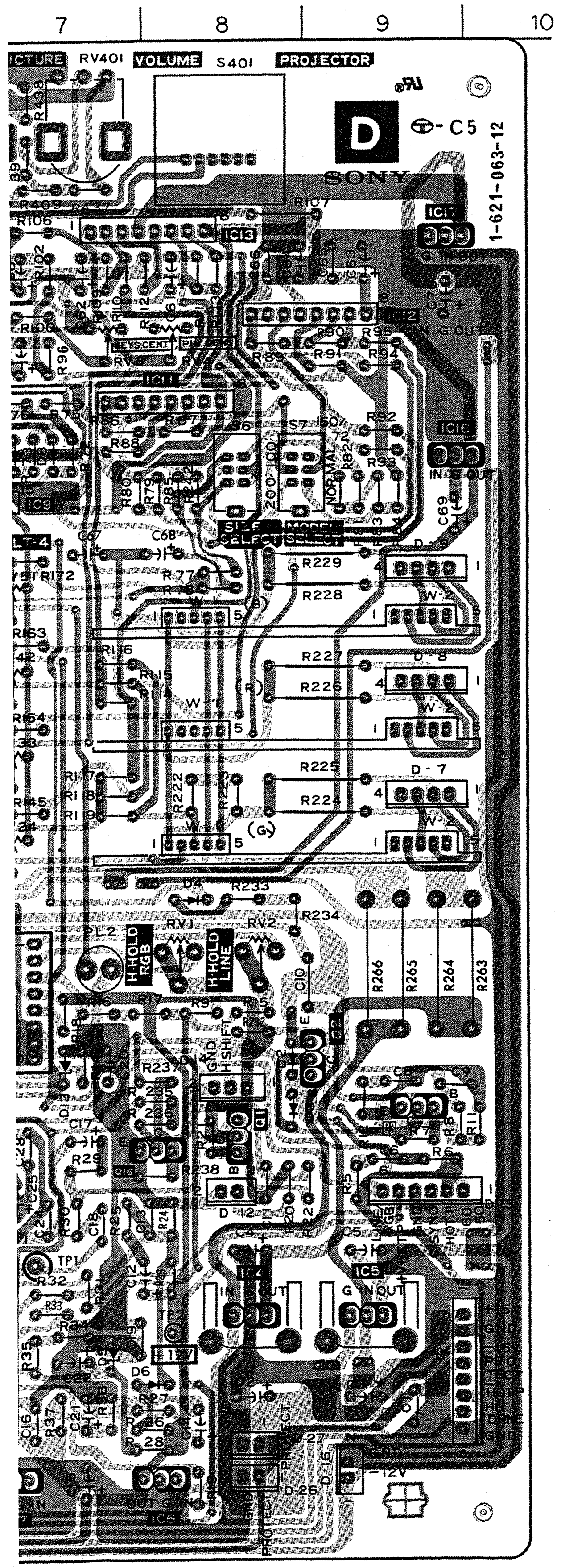
DIODE	
D1	J-4
D2	G-8
D3	G-8
D4	F-8
D5	I-7
D6	I-8
D7	G-7
D8	C-7
D9	C-7
D10	H-2
D11	F-2
D12	D-2
D13	G-7
D14	C-3
D15	E-1
D16	C-1
D17	C-2
D401	B-4
D402	B-5
D403	B-4
D404	B-4
D405	B-3
D406	B-4
D407	B-3
D408	B-2
D409	B-2
D410	B-2
D411	B-1
D412	B-2

VARIABLE RESISTOR	
RV1	F-8
RV2	F-8

DB

– DB Boa




7
8
9
10
RV401
VOLUME
S401
PROJECTOR
D
SONY
C5
1-621-063-12
H.HOLD RGB
H.HOLD LINE
RV1
RV2
TP1
PROTECT

D Board

IC

IC1	I-6
IC2	H-4
IC3	F-7
IC4	H-8
IC5	H-9
IC6	I-8
IC7	I-7
IC8	C-5
IC9	C-6
IC10	C-6
IC11	C-8
IC12	B-9
IC13	B-8
IC14	B-6
IC15	B-6
IC16	C-9
IC17	B-9
IC18	G-2
IC19	E-2
IC401	B-4
IC402	B-2
IC403	B-1

TRANSISTOR

Q1	G-8
Q2	G-9
Q3	G-9
Q4	I-5
Q5	I-5
Q6	H-6
Q7	I-2
Q8	H-1
Q9	G-1
Q10	F-2
Q11	F-1
Q12	E-1
Q13	D-2
Q14	D-1
Q15	C-1
Q16	G-8
Q17	H-6
Q18	I-4
Q19	C-2
Q20	D-3

DIODE

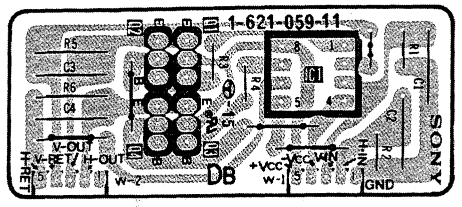
D1	J-4
D2	G-8
D3	G-8
D4	F-8
D5	I-7
D6	I-8
D7	G-7
D8	C-7
D9	C-7
D10	H-2
D11	F-2
D12	D-2
D13	G-7
D14	C-3
D15	E-1
D16	C-1
D17	C-2
D401	B-4
D402	B-5
D403	B-4
D404	B-4
D405	B-3
D406	B-4
D407	B-3
D408	B-2
D409	B-2
D410	B-2
D411	B-1
D412	B-2

VARIABLE RESISTOR

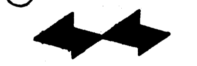
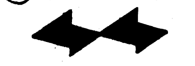
RV1	F-8
RV2	F-8

DB [SUB OUT]

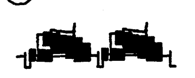
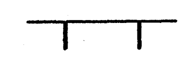
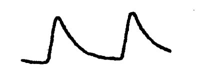
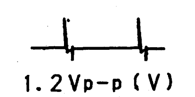
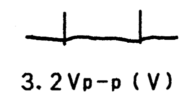
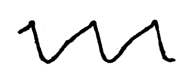
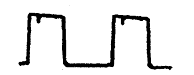
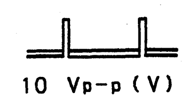
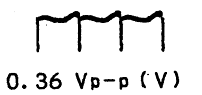
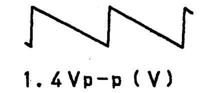
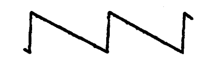
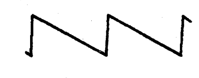
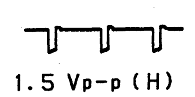
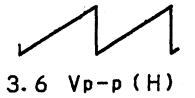
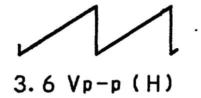
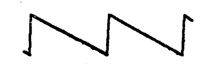
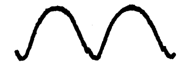
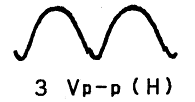
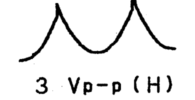
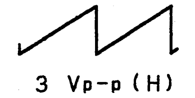
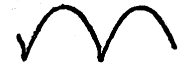
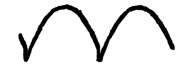
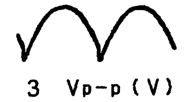
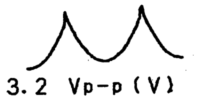
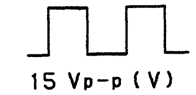
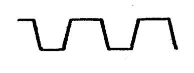
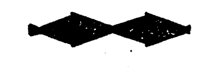
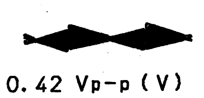
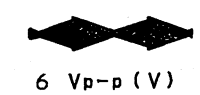
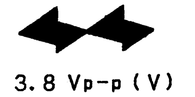
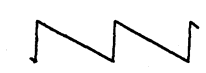
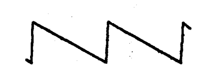
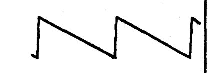
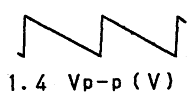
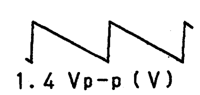
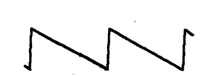
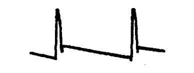
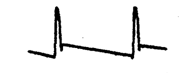
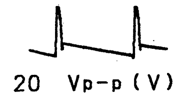
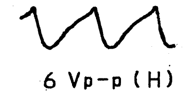
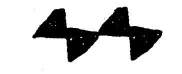
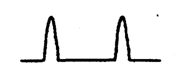
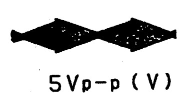
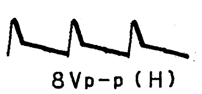
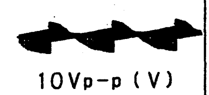
– DB Board –

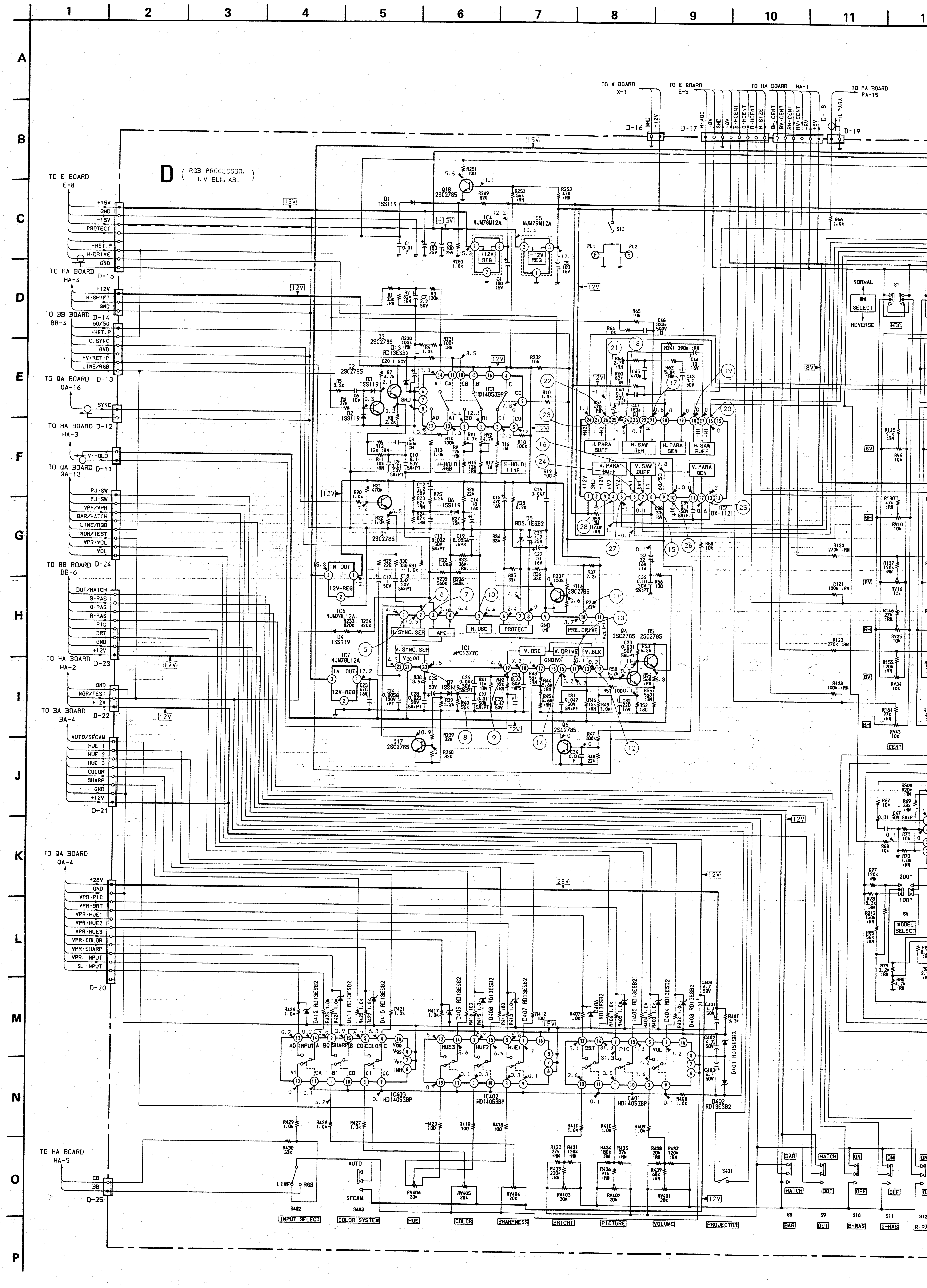

1-621-059-11
IC1
V-OUT
H-OUT
+VCC
W-1
W-2
GND
DB
SONY

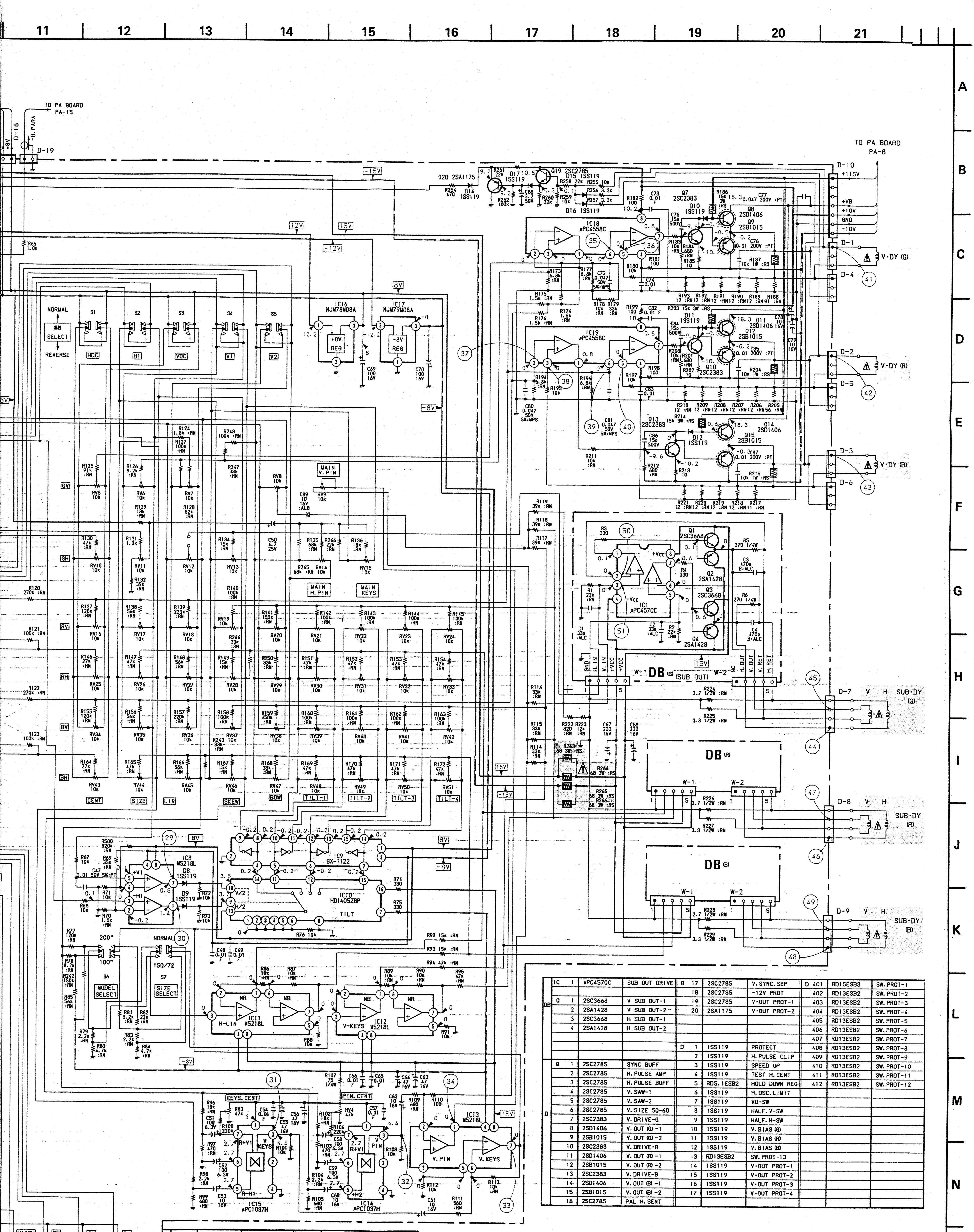
DB Board

㊿  0.4Vp-p (V)	(51)  0.4Vp-p (V)

D Board

⑤  2 Vp-p (H)	⑥  12Vp-p (H)	⑦  1.2 Vp-p (H)	⑧  1.2Vp-p (V)	⑨  3.2Vp-p (V)
⑩  4 Vp-p (H)	⑪  6.5Vp-p (H)	⑫  10 Vp-p (V)	⑬  0.36 Vp-p (V)	⑭  1.4Vp-p (V)
⑮  2.4Vp-p (V)	⑯  2.4Vp-p (V)	⑰  1.5 Vp-p (H)	⑱  3.6 Vp-p (H)	⑲  3.6 Vp-p (H)
⑳  3.6Vp-p (H)	㉑  3 Vp-p (H)	㉒  3 Vp-p (H)	㉓  3 Vp-p (H)	㉔  3 Vp-p (H)
㉕  3.2 Vp-p (V)	㉖  3.2Vp-p (V)	㉗  3 Vp-p (V)	㉘  3.2 Vp-p (V)	㉙  15 Vp-p (V)
㉚  15 Vp-p (H)	㉛  0.36 Vp-p (V)	㉜  0.42 Vp-p (V)	㉝  6 Vp-p (V)	㉞  3.8 Vp-p (V)
㉟  1.4 Vp-p (V)	㊱  1.4Vp-p (V)	㊲  1.4 Vp-p (V)	㊳  1.4 Vp-p (V)	㊴  1.4 Vp-p (V)
㊵  1.4 Vp-p (V)	㊶  20 Vp-p (V)	㊷  20 Vp-p (V)	㊸  20 Vp-p (V)	㊹  6 Vp-p (H)
㊺  17.5Vp-p (V)	㊻  3 Vp-p (H)	㊼  5Vp-p (V)	㊽  8Vp-p (H)	㊾  10Vp-p (V)


D (RGB PROCESSOR, H. V BLK. ABL)
TO E BOARD E-8
+15V
GND
-15V
PROTECT
-HET.P
H.DRIVE
GND
D-15
TO HA BOARD HA-4
+12V
H.SHIFT
GND
TO BB BOARD BB-4
D-14
60/50
-HET.P
C.SYNC
GND
+V·RET·P
LINE/RGB
TO QA BOARD QA-16
D-13
SYNC
TO HA BOARD HA-3
D-12
V·HOLD
TO QA BOARD QA-13
D-11
PJ·SW
PJ·SW
VPH/VPR
BAR/HATCH
LINE/RGB
NOR/TEST
VPR·VOL
VOL
TO BB BOARD BB-6
D-24
DOT/HATCH
B·RAS
G·RAS
R·RAS
PIC
BRT
GND
+12V
TO HA BOARD HA-2
D-23
GND
NOR/TEST
+12V
TO BA BOARD BA-4
D-22
AUTO/SECAM
HUE 1
HUE 2
HUE 3
COLOR
SHARP
GND
+12V
D-21
TO QA BOARD QA-4
+28V
GND
VPR·PIC
VPR·BRT
VPR·HUE1
VPR·HUE2
VPR·HUE3
VPR·COLOR
VPR·SHARP
VPR. INPUT
S. INPUT
D-20
TO HA BOARD HA-5
CB
BB
D-25
TO X BOARD X-1
D-16
GND
-12V
TO E BOARD E-5
D-17
H-AGC
GND
+8V
B·HCENT
G·HCENT
R·HCENT
H.SIZE
TO HA BOARD HA-1
BH·CENT
RH·CENT
BV·CENT
RV·CENT
-8V
+8V
D-18
TO PA BOARD PA-15
H.PARA
D-19
15V
12V
-12V
-15V
8V
28V
Q18 2SC2785
D1 1SS119
IC4 NJM78M12A
+12V REG
IC5 NJM79M12A
-12V REG
S13
PL1
PL2
IC3 HD14053BP
H-HOLD RGB
H-HOLD LINE
Q3 2SC2785
Q2 2SC2785
D13 RD13ESB2
D3 1SS119
D2 1SS119
Q1 2SC2785
D6 1SS119
D5 RD5.1ESB2
IC6 NJM78L12A
12V-REG
IN OUT
IC7 NJM78L12A
D4 1SS119
IC1 μPC1377C
H.SYNC. SEP
AFC
H.OSC
PROTECT
PRE.DRIVE
V.SYNC. SEP
V.OSC
V.DRIVE
V.BLK
Q16 2SC2785
Q4 2SC2785
Q5 2SC2785
Q6 2SC2785
Q17 2SC2785
IC2 BX-1121
H.PARA BUFF
H.SAW GEN
H.PARA GEN
H.SAW BUFF
V.PARA BUFF
V.SAW BUFF
V.PARA GEN
NORMAL
SELECT
REVERSE
HDC
S1
GV
GH
RV
RH
BV
BH
CENT
S6
MODEL SELECT
IC403 HD14053BP
IC402 HD14053BP
IC401 HD14053BP
INPUT
SHARP
COLOR
HUE3
HUE2
HUE1
BRT
PIC
VOL
D401 RD15ESB3
D402 RD13ESB2
D403 RD13ESB2
D404 RD13ESB2
D405 RD13ESB2
D406 RD13ESB2
D407 RD13ESB2
D408 RD13ESB2
D409 RD13ESB2
D410 RD13ESB2
D411 RD13ESB2
D412 RD13ESB2
LINE
RGB
AUTO
SECAM
RV406 20k
RV405 20k
RV404 20k
RV403 20k
RV402 20k
RV401 20k
S401
S402
S403
INPUT SELECT
COLOR SYSTEM
HUE
COLOR
SHARPNESS
BRIGHT
PICTURE
VOLUME
PROJECTOR
BAR
HATCH
DOT
ON
OFF
S8
S9
S10
S11
S12
B-RAS
G-RAS
R-RA


11
12
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16
17
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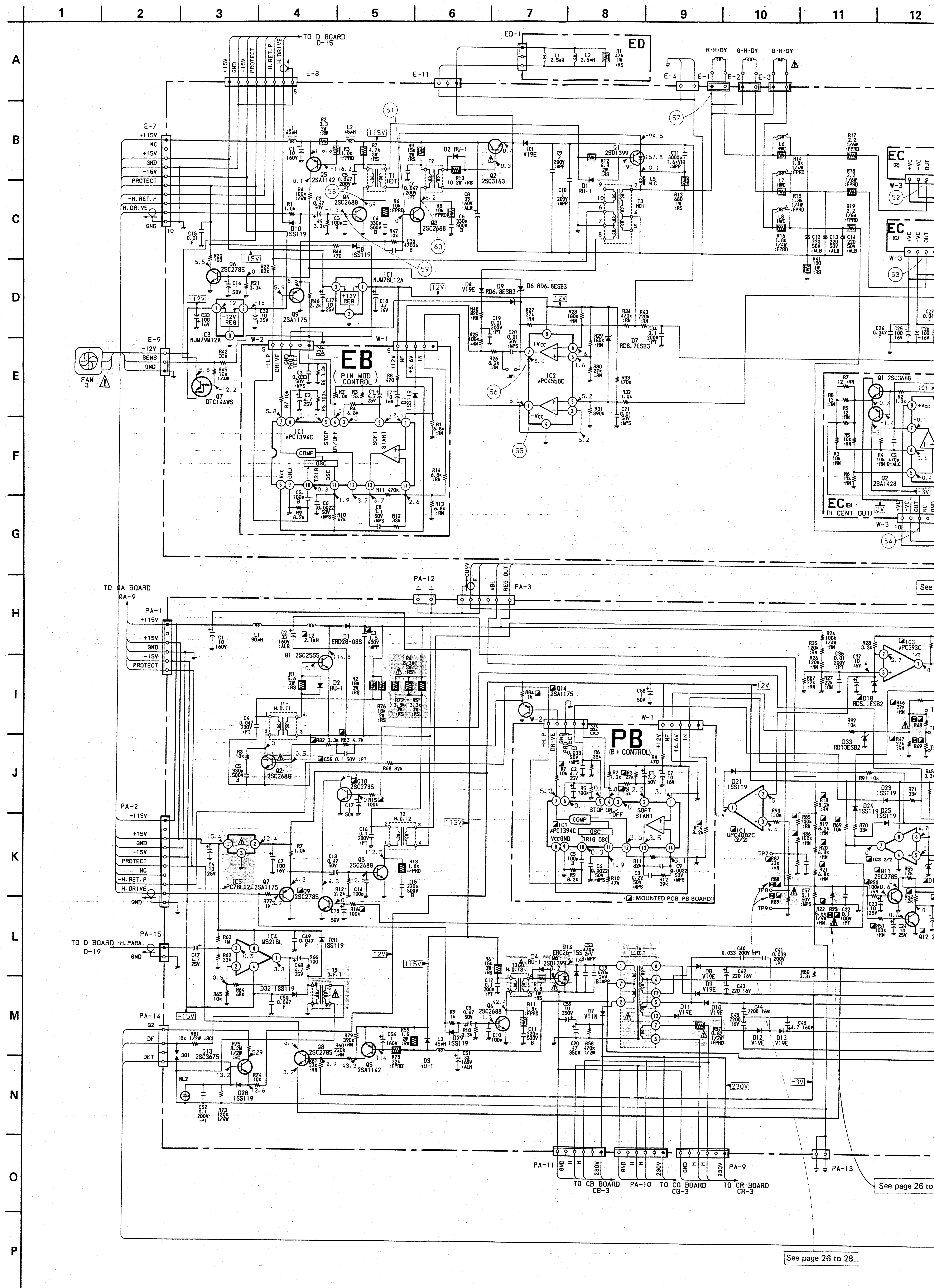
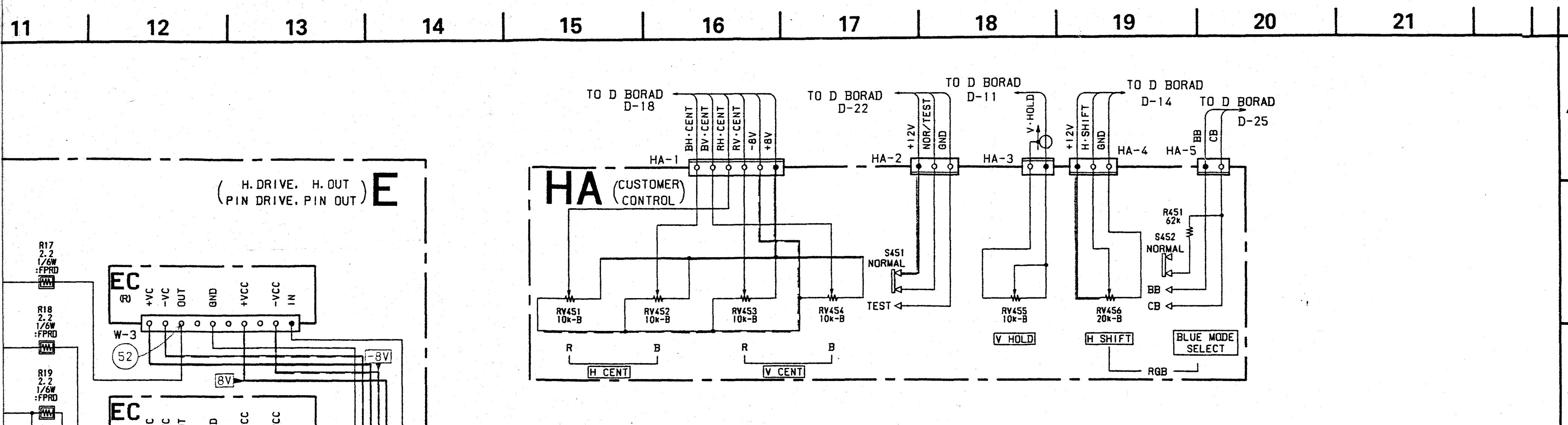
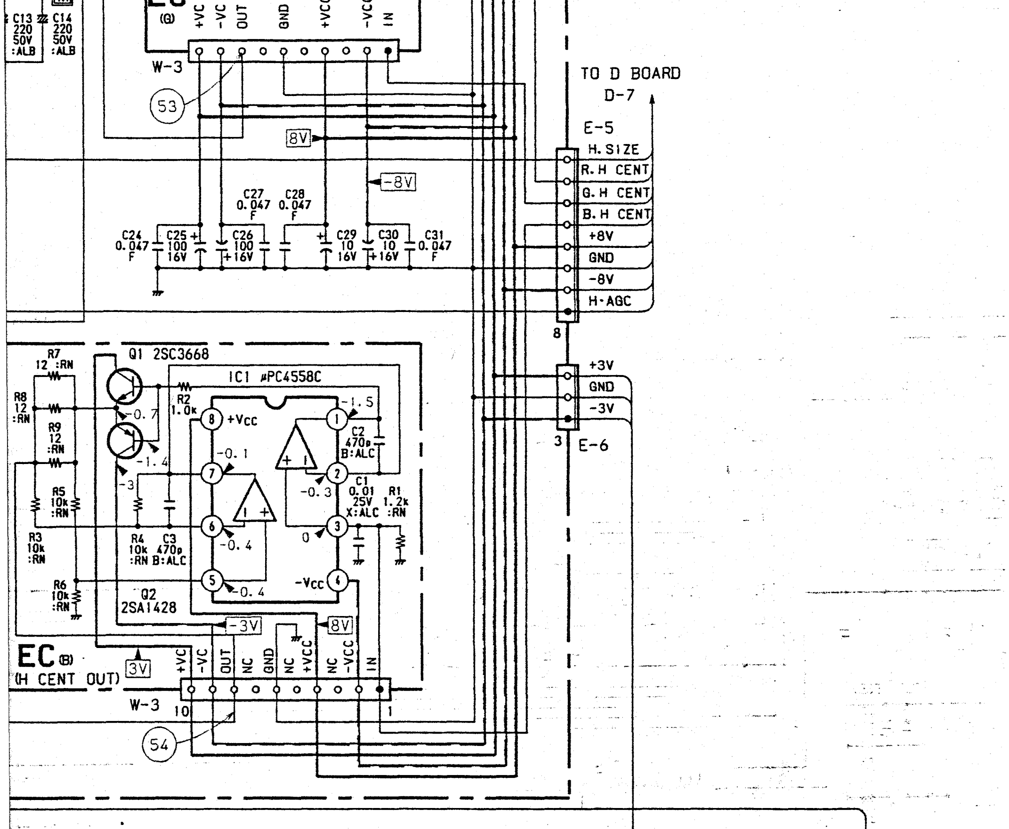
19
20
21
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
TO PA BOARD PA-15
D-18
H.PARA
D-19
TO PA BOARD PA-8
D-10
+115V
+VB
+10V
GND
-10V
D-1
V·DY (G)
D-4
D-2
V·DY (R)
D-5
D-3
V·DY (B)
D-6
Q20 2SA1175
Q19 2SC2785
IC18 μPC4558C
IC19 μPC4558C
Q7 2SC2383
Q8 2SD1406
Q9 2SB1015
Q10 2SC2383
Q11 2SD1406
Q12 2SB1015
Q13 2SC2383
Q14 2SD1406
Q15 2SB1015
IC16 NJM78M08A
IC17 NJM79M08A
+8V REG
-8V REG
NORMAL
SELECT
REVERSE
S1
S2
S3
S4
S5
HDC
H1
VDC
V1
V2
MAIN V.PIN
MAIN H.PIN
MAIN KEYS
GV
GH
RV
RH
BV
BH
CENT
SIZE
LIN
SKEW
BOW
TILT-1
TILT-2
TILT-3
TILT-4
Q1 2SC3668
Q2 2SA1428
Q3 2SC3668
Q4 2SA1428
IC1 μPC4570C
DB (G) (SUB OUT)
W-1
W-2
GND
V.IN
H.IN
-VCC
+VCC
NC
H.OUT
V.OUT
V.RET
H.RET
D-7
SUB·DY (G)
DB (R)
D-8
SUB·DY (R)
DB (B)
D-9
SUB·DY (B)
IC8 M5218L
IC9 BX-1122
IC10 HD14052BP
TILT
MODEL SELECT
SIZE SELECT
S6
S7
IC11 M5218L
H-LIN
IC12 M5218L
V-KEYS
KEYS.CENT
PIN.CENT
IC13 M5218L
V.PIN
V.KEYS
IC15 μPC1037H
IC14 μPC1037H
HATCH
ON
DOT
OFF
S9
S10
S11
S12
B-RAS
G-RAS
R-RAS
15V
-15V
12V
-12V
8V
-8V

DB	IC 1	μPC4570C	SUB OUT DRIVE	Q 17	2SC2785	V.SYNC.SEP	D 401	RD15ESB3	SW.PROT-1
				18	2SC2785	-12V PROT	402	RD13ESB2	SW.PROT-2
	Q 1	2SC3668	V SUB OUT-1	19	2SC2785	V·OUT PROT-1	403	RD13ESB2	SW.PROT-3
	2	2SA1428	V SUB OUT-2	20	2SA1175	V·OUT PROT-2	404	RD13ESB2	SW.PROT-4
	3	2SC3668	H SUB OUT-1				405	RD13ESB2	SW.PROT-5
	4	2SA1428	H SUB OUT-2				406	RD13ESB2	SW.PROT-6
							407	RD13ESB2	SW.PROT-7
				D 1	1SS119	PROTECT	408	RD13ESB2	SW.PROT-8
				2	1SS119	H.PULSE CLIP	409	RD13ESB2	SW.PROT-9
D	Q 1	2SC2785	SYNC BUFF	3	1SS119	SPEED UP	410	RD13ESB2	SW.PROT-10
	2	2SC2785	H.PULSE AMP	4	1SS119	TEST H.CENT	411	RD13ESB2	SW.PROT-11
	3	2SC2785	H.PULSE BUFF	5	RD5.1ESB2	HOLD DOWN REG	412	RD13ESB2	SW.PROT-12
	4	2SC2785	V.SAW-1	6	1SS119	H.OSC.LIMIT			
	5	2SC2785	V.SAW-2	7	1SS119	VD-SW			
	6	2SC2785	V.SIZE 50-60	8	1SS119	HALF.V-SW			
	7	2SC2383	V.DRIVE-G	9	1SS119	HALF.H-SW			
	8	2SD1406	V.OUT (G) -1	10	1SS119	V.BIAS (G)			
	9	2SB1015	V.OUT (G) -2	11	1SS119	V.BIAS (R)			
	10	2SC2383	V.DRIVE-R	12	1SS119	V.BIAS (B)			
	11	2SD1406	V.OUT (R) -1	13	RD13ESB2	SW.PROT-13			
	12	2SB1015	V.OUT (R) -2	14	1SS119	V·OUT PROT-1			
	13	2SC2383	V.DRIVE-B	15	1SS119	V·OUT PROT-2			
	14	2SD1406	V.OUT (B) -1	16	1SS119	V·OUT PROT-3			
	15	2SB1015	V.OUT (B) -2	17	1SS119	V·OUT PROT-4			
	16	2SC2785	PAL H.SENT						

D	IC 1	μPC1377C	H.V OSC	IC 13	M5218L	V PIN AMP
	2	BX-1121	SIG GEN	14	μPC1037H	V PIN GEN
	3	HD14053BP	MODE SW	15	μPC1037H	KEYS GEN
	4	NJM78M12A	+12V REG	16	NJM78M08A	+8V REG
	5	NJM79M12A	-12V REG	17	NJM79M08A	-8V REG
	6	NJM78L12A	12V REG (H)	18	μPC4558C	V AMP MAIN
	7	NJM78L12A	12V REG (V)	19	μPC4558C	V AMP R/B
	8	M5218L	HALF H.V			
	9	BX-1122	TILT BUFF	401	HD14053BP	REMOTE SW-1
	10	HD14052BP	TILT SW	402	HD14053BP	REMOTE SW-2
	11	M5218L	H LIN BUFF	403	HD14053BP	REMOTE SW-3
	12	M5218L	V KEYS BUFF			

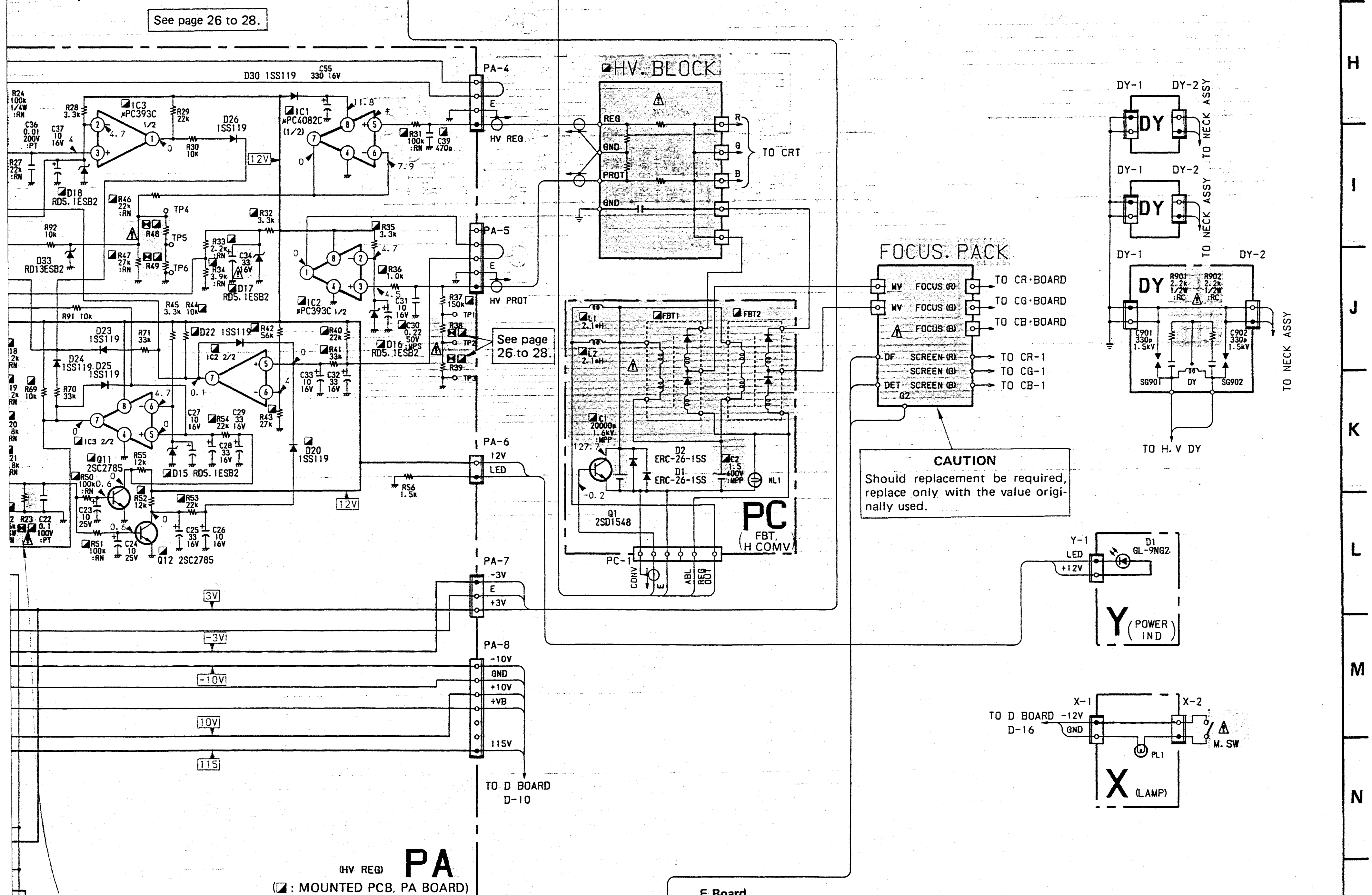

TO D BOARD D-15
ED
ED-1
E-8
E-11
E-4
E-1
E-2
E-3
R·H·DY
G·H·DY
B·H·DY
E-7
+115V
NC
+15V
GND
-15V
PROTECT
-H. RET. P
H. DRIVE
EB
(PIN MOD CONTROL)
IC1 μPC1394C
IC1 NJM78L12A
IC2 μPC4558C
IC3 NJM79M12A
Q1 2SD1399
Q2 2SC3163
Q3 2SC2688
Q4 2SC2688
Q5 2SA1142
Q6 2SC2785
Q7 DTC144WS
Q9 2SA1175
T1 HDT
T2
T3 HOT
E-9
SENS
FAN 3
W-1
W-2
EC (R)
EC (G)
EC (B)
(H CENT OUT)
W-3
Q1 2SC3668
Q2 2SA1428
TO QA BOARD QA-9
PA-1
PA-2
PA-3
PA-12
CONV
ABL
REG OUT
PB
(B+ CONTROL)
(◪: MOUNTED PCB, PB BOARD)
IC1 μPC1394C
IC1 UPC4082C (2/2)
IC3 μPC393C
IC4 M5218L
IC5 μPC78L12
Q1 2SC2555
Q2 2SC2688
Q3 2SC2688
Q4 2SC2688
Q5 2SA1142
Q6 2SD1399
Q7 2SA1175
Q8 2SC2785
Q9 2SC2785
Q10 2SC2785
Q11 2SC2785
Q13 2SC3675
Q14 2SA1175
T1 H.D.T1
T2 H.D.T2
T3 H.D.T3
T4 L.O.T
T5 D.F.T
TO D BOARD -H. PARA D-19
PA-15
PA-14
G2
DF
DET
PA-11
PA-10
PA-9
PA-13
TO CB BOARD CB-3
TO CG BOARD CG-3
TO CR BOARD CR-3
230V
See page 26 to 28.
See page 26 to
See
1
2
3
4
5
6
7
8
9
10
11
12
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P


11
12
13
14
15
16
17
18
19
20
21
A
B
C
TO D BORAD D-18
BH·CENT
BV·CENT
RH·CENT
RV·CENT
-8V
+8V
HA-1
TO D BORAD D-22
+12V
NOR/TEST
GND
HA-2
TO D BORAD D-11
V·HOLD
HA-3
TO D BORAD D-14
+12V
H·SHIFT
GND
HA-4
TO D BORAD D-25
BB
CB
HA-5
HA (CUSTOMER CONTROL)
(H.DRIVE, H.OUT PIN DRIVE, PIN OUT) E
S451 NORMAL
TEST
RV451 10k-B
RV452 10k-B
RV453 10k-B
RV454 10k-B
R B
H CENT
R B
V CENT
RV455 10k-B
V HOLD
RV456 20k-B
H SHIFT
R451 62k
S452 NORMAL
BB
CB
BLUE MODE SELECT
RGB
EC (R)
+VC
-VC
OUT
GND
+VCC
-VCC
IN
W-3
52
8V
-8V
R17 2.2 1/6W :FPRD
R18 2.2 1/6W :FPRD
R19 2.2 1/6W :FPRD


EC (G)
+VC
-VC
OUT
GND
+VCC
-VCC
IN
W-3
53
8V
-8V
C13 220 50V :ALB
C14 220 50V :ALB
TO D BOARD D-7
E-5
H.SIZE
R.H CENT
G.H CENT
B.H CENT
+8V
GND
-8V
H·AGC
8
C24 0.047 F
C25 100 16V
C26 100 16V
C27 0.047 F
C28 0.047 F
C29 10 16V
C30 10 16V
C31 0.047 F
+3V
GND
-3V
3
E-6
Q1 2SC3668
IC1 µPC4558C
R7 12 :RN
R8 12 :RN
R9 12 :RN
R2 1.0k
+Vcc
-Vcc
C2 470p B:ALC
C1 0.01 25V X:ALC
R1 1.2k :RN
R5 10k :RN
R3 10k :RN
R4 10k :RN
C3 470p :RN B:ALC
R6 10k :RN
Q2 2SA1428
-3V
8V
EC (B) (H CENT OUT)
3V
W-3
54
CH
D
E
F
G

<table>
<tr><td rowspan="21">E</td><td>IC</td><td>1</td><td>NJM78L12A</td><td>12V.REG</td><td rowspan="37">PA</td><td>IC</td><td>1</td><td>µPC4082C</td><td>HV REG DET</td><td>D</td><td>20</td><td>1SS119</td><td>SW-1</td></tr>
<tr><td></td><td>2</td><td>µPC4558C</td><td>H.PIN.AMP</td><td></td><td>2</td><td>µPC393C</td><td>HV DET</td><td></td><td>21</td><td>1SS119</td><td>SW-5</td></tr>
<tr><td></td><td>3</td><td>NJM79M12A</td><td>-12V.REG</td><td></td><td>3</td><td>µPC393C</td><td>ΣIK DET</td><td></td><td>22</td><td>1SS119</td><td>PROT HOLD</td></tr>
<tr><td>Q</td><td>1</td><td>2SD1399</td><td>H.OUT</td><td></td><td>4</td><td>M5218L</td><td>D FOCUS AMP</td><td></td><td>23</td><td>1SS119</td><td>SW-2</td></tr>
<tr><td></td><td>2</td><td>2SC3163</td><td>H.PIN.OUT</td><td></td><td>5</td><td>µPC78L12</td><td>12V REG</td><td></td><td>24</td><td>1SS119</td><td>SW-3</td></tr>
<tr><td></td><td>3</td><td>2SC2688</td><td>H.PIN.DRIVE</td><td></td><td></td><td></td><td></td><td></td><td>25</td><td>1SS119</td><td>ΣIK HOLD</td></tr>
<tr><td></td><td>4</td><td>2SC2688</td><td>H.OUT.DRIVE</td><td>Q</td><td>1</td><td>2SC2555</td><td>HV REG</td><td></td><td>26</td><td>1SS119</td><td>SW-4</td></tr>
<tr><td></td><td>5</td><td>2SA1142</td><td>H.PIN.OLP</td><td></td><td>2</td><td>2SC2688</td><td>HV REG DRIVE</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>6</td><td>2SC2785</td><td>PROTECT.SW-1</td><td></td><td>3</td><td>2SC2688</td><td>H DRIVE-1</td><td></td><td>28</td><td>1SS119</td><td>PROTECT-2</td></tr>
<tr><td></td><td>7</td><td>DTC144WS</td><td>PROTECT.SW-2</td><td></td><td>4</td><td>2SC2688</td><td>H DRIVE-2</td><td></td><td>29</td><td>1SS119</td><td>SPEED UP-3</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>5</td><td>2SA1142</td><td>CURRENT PROT</td><td></td><td>30</td><td>1SS119</td><td></td></tr>
<tr><td></td><td>9</td><td>2SA1175</td><td>H.PIN.BUFF</td><td></td><td>6</td><td>2SD1399</td><td>CONV</td><td></td><td>31</td><td>1SS119</td><td>D.F.PROT-1</td></tr>
<tr><td>D</td><td>1</td><td>RU-1</td><td>SPEED.UP-1</td><td></td><td>7</td><td>2SA1175</td><td>H DRIVE BUFF</td><td></td><td>32</td><td>1SS119</td><td>D.F.PROT-2</td></tr>
<tr><td></td><td>2</td><td>RU-1</td><td>SPEED.UP-2</td><td></td><td>8</td><td>2SC2785</td><td>PROT SW</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>3</td><td>V19E</td><td>-100V.CLAMP</td><td></td><td>9</td><td>2SC2785</td><td>HV PROT SW-1</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>4</td><td>V19E</td><td>PULSE.CLAMP</td><td></td><td>10</td><td>2SC2785</td><td>HV PROT SW-2</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>6</td><td>RD6.8ESB3</td><td>6.8V.ZENER</td><td></td><td>11</td><td>2SC2785</td><td>ΣIK PROT DET-1</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>7</td><td>RD8.2ESB3</td><td>H.PIN.PROT-1</td><td></td><td>12</td><td>2SC2785</td><td>ΣIK PROT DET-2</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>8</td><td>1SS119</td><td>12V.REG.PROT</td><td></td><td>13</td><td>2SC3675</td><td>G2 CONT</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>9</td><td>RD6.8ESB3</td><td>H.PIN.PROT-2</td><td></td><td>14</td><td>2SA1175</td><td>REG BUFF</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>10</td><td>1SS119</td><td>SPEED.UP-3</td><td>D</td><td>1</td><td>ERD28-08S</td><td>HV REG CLAMP</td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="4">EB</td><td>IC</td><td>1</td><td>µPC1394C</td><td>H.PIN.CONT</td><td></td><td>2</td><td>RU-1</td><td>SPEED UP-1</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>3</td><td>RU-1</td><td>PROTECT-1</td><td></td><td></td><td></td><td></td></tr>
<tr><td>D</td><td>1</td><td>1SS119</td><td>PROTECT</td><td></td><td>4</td><td>RU-1</td><td>SPEED UP-2</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="5">EC</td><td>IC</td><td>1</td><td>µPC4558C</td><td>H.CENT.DRIVE</td><td></td><td>7</td><td>V11N</td><td>+230V RECT</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>8</td><td>V19E</td><td>+3V RECT</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Q</td><td>1</td><td>2SC3668</td><td>H.CENT.OUT-1</td><td></td><td>9</td><td>V19E</td><td>-3V RECT</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td>2</td><td>2SA1428</td><td>H.CENT.OUT-2</td><td></td><td>10</td><td>V19E</td><td>+10V RECT</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>11</td><td>V19E</td><td>-10V RECT</td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="2">PB</td><td>IC</td><td>1</td><td>µPC1394C</td><td>HV.REG.CONT</td><td></td><td>12</td><td>V19E</td><td>V STOPPER</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>13</td><td>V19E</td><td>V RECT</td><td></td><td></td><td></td><td></td></tr>
<tr><td rowspan="4">PC</td><td>Q</td><td>1</td><td>2SD1548</td><td>HV.CONV.</td><td></td><td>14</td><td>ERC26-15S</td><td>DAMP-1</td><td></td><td></td><td></td><td></td></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td>15</td><td>RD5.1ESB2</td><td>ΣIK ZENER</td><td></td><td></td><td></td><td></td></tr>
<tr><td>D</td><td>1</td><td>ERC-26-15S</td><td>DAMP-1</td><td></td><td>16</td><td>RD5.1ESB2</td><td>HV PROT ZENER</td><td></td><td></td><td></td><td></td></tr>
<tr><td>D</td><td>2</td><td>ERC-26-15S</td><td>DAMP-2</td><td></td><td>17</td><td>RD5.1ESB2</td><td>HV REG ZENER</td><td></td><td></td><td></td><td></td></tr>
<tr><td>Y</td><td>D</td><td>1</td><td>GL-9NG2</td><td>POWER</td><td></td><td>18</td><td>RD5.1ESB2</td><td>REG OUT ZENER</td><td></td><td></td><td></td><td></td></tr>
</table>

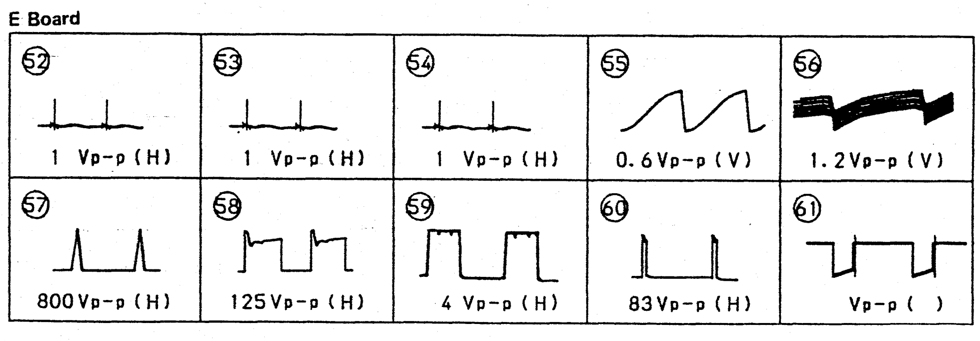
See page 26 to 28.


PA-4
D30 1SS119
C55 330 16V
IC3 µPC393C 1/2
IC1 µPC4082C (1/2)
R28 3.3k
R29 22k
D26 1SS119
R30 10k
12V
R24 100k 1/4W :RN
C36 0.01 200V :PT
C37 10 16V
D18 RD5.1ESB2
R31 100k :RN
C39 470p
HV REG
E
HV·BLOCK
REG
GND
PROT
GND
R
G
B
TO CRT
DY-1
DY-2
DY
TO NECK ASSY
R46 22k :RN
TP4
R48
TP5
R47 27k :RN
R49
TP6
R32 3.3k
R33 2.2k :RN
C34 33 16V
R34 3.9k :RN
R35 3.3k
R36 1.0k
D17 RD5.1ESB2
IC2 µPC393C 1/2
PA-5
HV PROT
R92 10k
D33 RD13ESB2
R91 10k
R45 3.3k
R44 10k
R37 150k :RN
R38
R39
C31 10 16V
C30 0.22 50V :MPS
D16 RD5.1ESB2
TP1
TP2
TP3
See page 26 to 28.
D23 1SS119
R71 33k
D22 1SS119
R42 56k
R40 22k
R41 33k
D24 1SS119
D25 1SS119
IC2 2/2
R69 10k
R70 33k
C33 10 16V
C32 33 16V
IC3 2/2
C27 10 16V
R54 22k
C29 33 16V
R43 27k
C28 33 16V
D20 1SS119
Q11 2SC2785
R55 12k
D15 RD5.1ESB2
R50 100k :RN
R52 12k
R53 22k
C23 10 25V
R23
C22 0.1 100V :PT
R51 100k :RN
C24 10 25V
C25 33 16V
C26 33 16V
Q12 2SC2785
12V
PA-6
12V
LED
R56 1.5k
FOCUS PACK
MV
FOCUS (R)
FOCUS (G)
FOCUS (B)
TO CR·BOARD
TO CG·BOARD
TO CB·BOARD
DF
SCREEN (R)
SCREEN (G)
DET
SCREEN (B)
G2
TO CR-1
TO CG-1
TO CB-1
R901 2.2k 1/2W :RC
R902 2.2k 1/2W :RC
C901 330p 1.5kV
C902 330p 1.5kV
SG901
SG902
TO H.V DY
L1 2.1mH
L2 2.1mH
FBT1
FBT2
C1 20000p 1.6kV :MPP
C2 1.5 400V :MPP
D2 ERC-26-15S
D1 ERC-26-15S
NL1
Q1 2SD1548
PC (FBT, H COMV)
PC-1
CONV
E
ABL
REG OUT
Y-1
LED
+12V
D1 GL-9NG2
Y (POWER IND)
PA-7
-3V
E
+3V
3V
-3V
PA-8
-10V
GND
+10V
+VB
115V
-10V
10V
115
TO D BOARD D-10
TO D BOARD -12V D-16
GND
X-1
X-2
PL1
M. SW
X (LAMP)
(HV REG) PA
(◪ : MOUNTED PCB. PA BOARD)
PA-13
See page 26 to 28.
H
I
J
K
L
M
N

CAUTION

Should replacement be required, replace only with the value originally used.

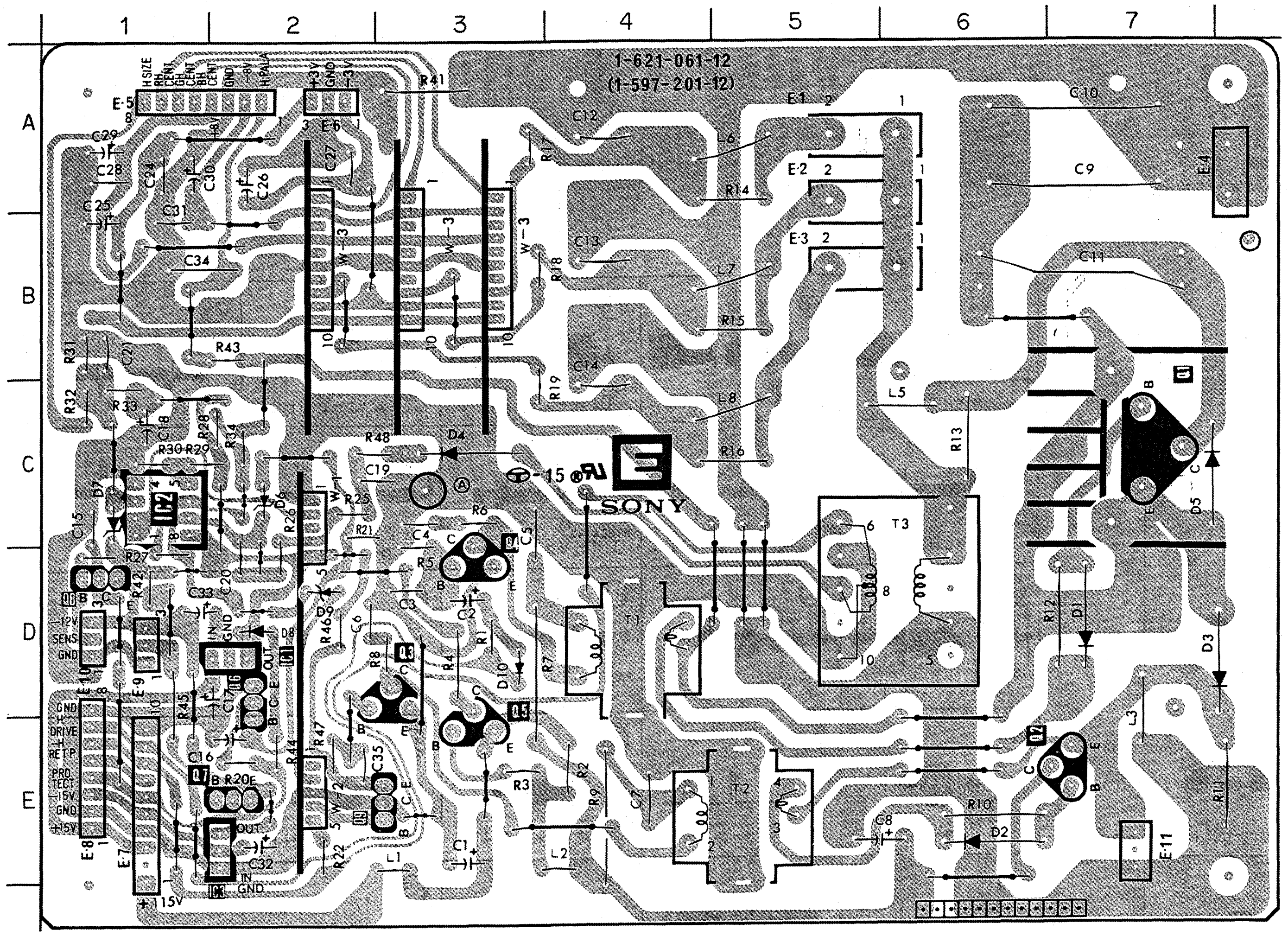
E Board


52
1 Vp-p (H)
53
1 Vp-p (H)
54
1 Vp-p (H)
55
0.6Vp-p (V)
56
1.2Vp-p (V)
57
800Vp-p (H)
58
125Vp-p (H)
59
4 Vp-p (H)
60
83Vp-p (H)
61
Vp-p ( )
O
P

26 to 28.

E [H. DRIVE, H OUT / PIN DRIVE, PIN OUT] **EB** [PIN MOD CONTROL] **EC** [H. CENT OUT] **ED** **PA** [HV REG] **PB** [HV CONTROL] **PC** [FBT, H CONV]

– E Board –


1-621-061-12
(1-597-201-12)
SONY

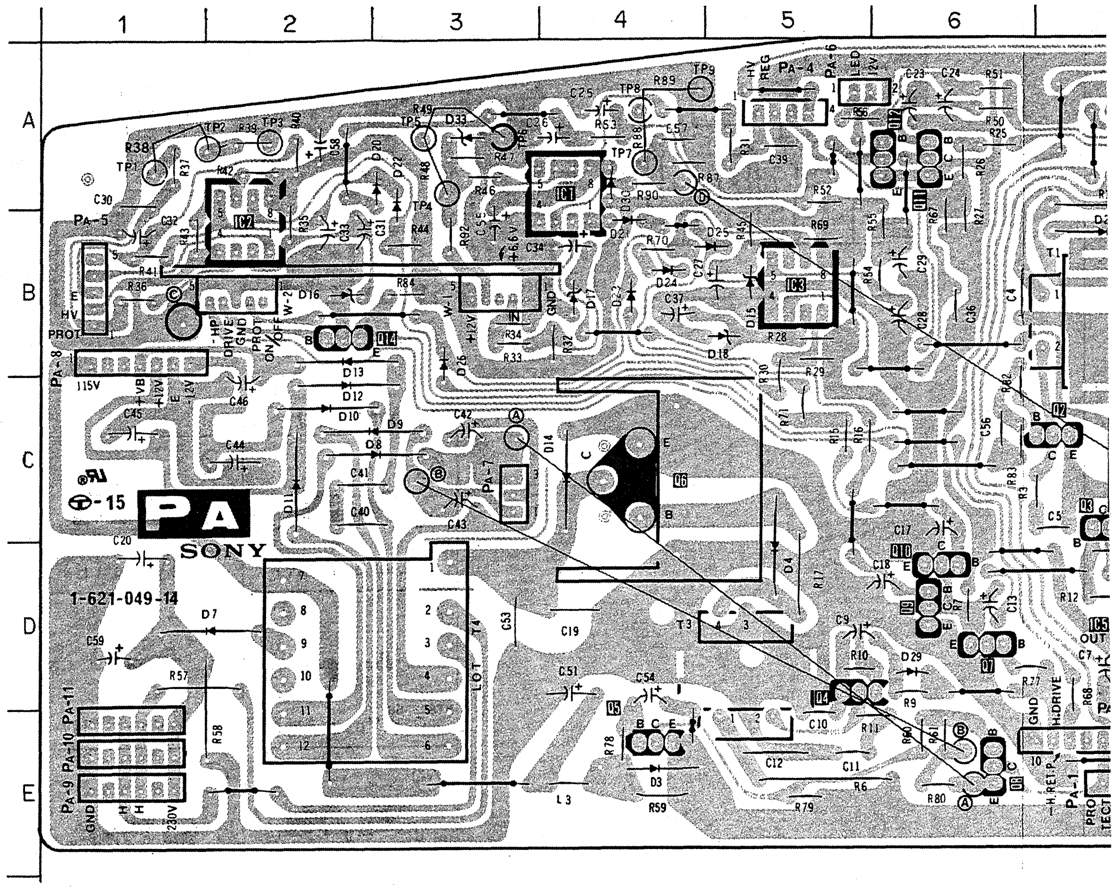
E Board

IC	
IC1	D-2
IC2	C-1
IC3	E-2

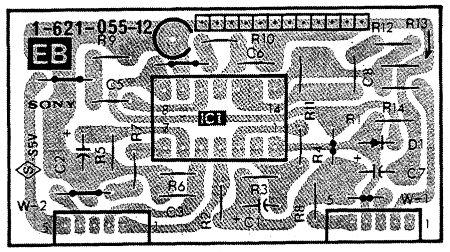
TRANSISTOR	
Q1	C-7
Q2	E-7
Q3	D-3
Q4	D-3
Q5	E-3
Q6	D-2
Q7	E-2
Q8	D-1
Q9	E-3

DIODE	
D1	D-7
D2	E-6
D3	D-8
D4	C-3
D5	C-8
D6	C-2
D7	C-1
D8	D-2
D9	D-2
D10	D-3

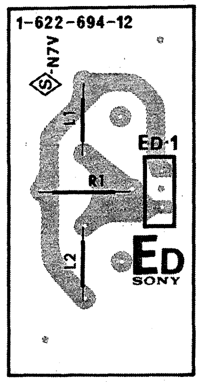
– PA Board –


1-621-049-14
SONY

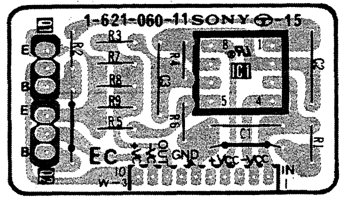
– EB Board –



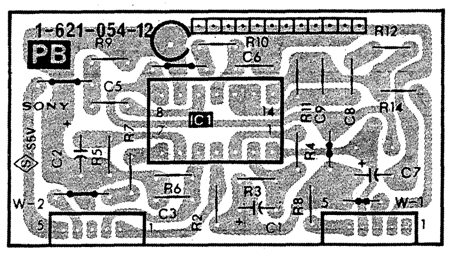
– ED Board –



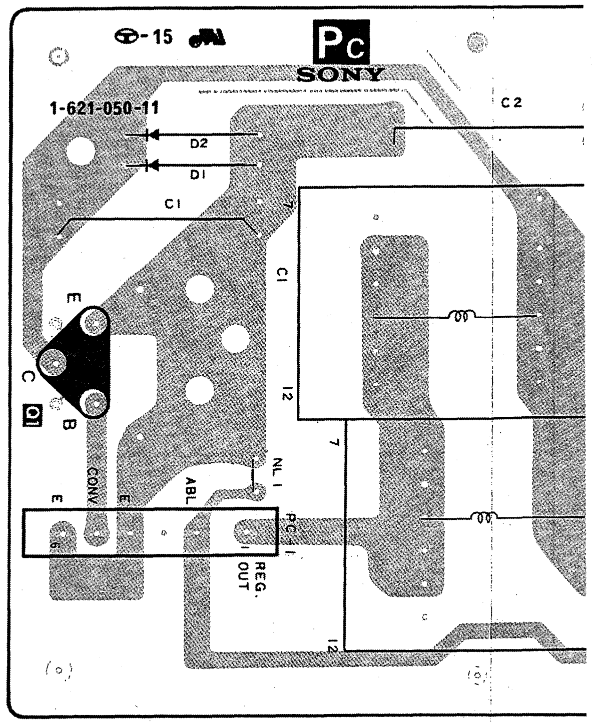
– EC Board –

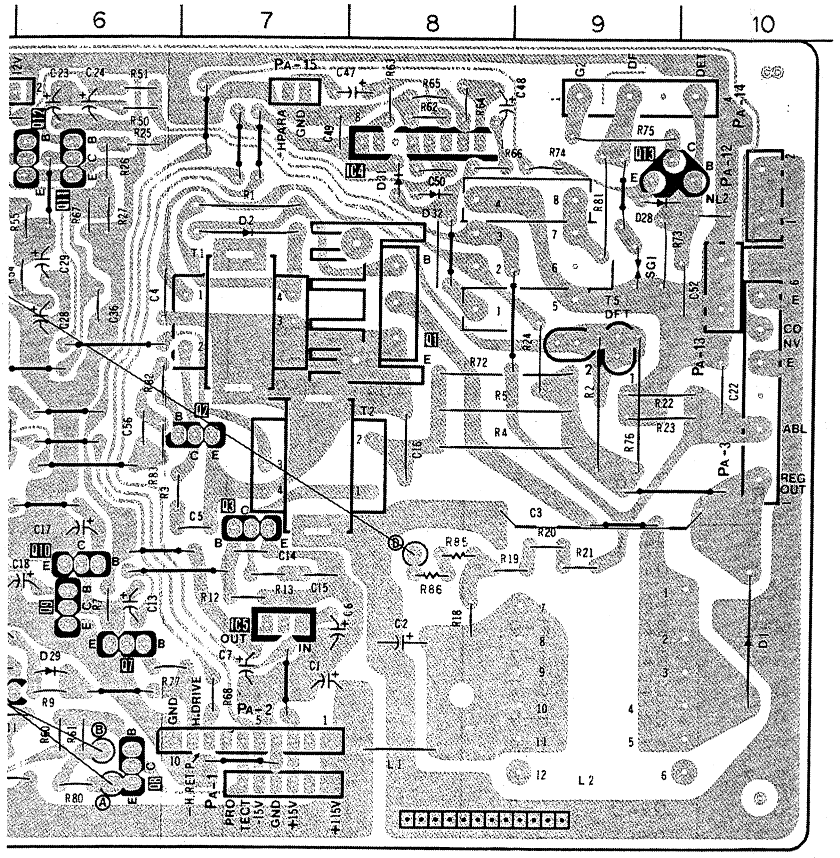


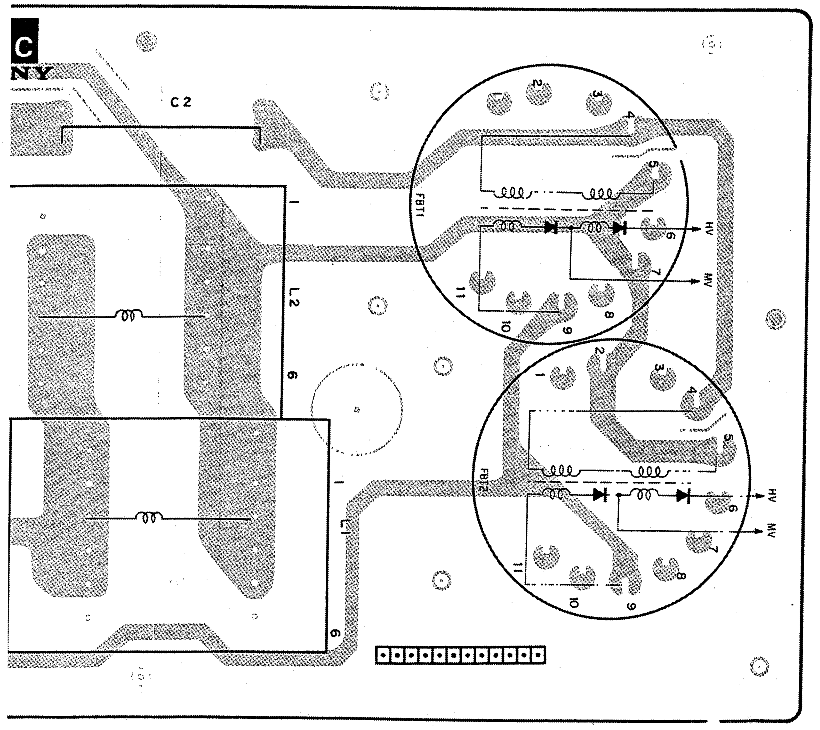
– PB Board –



– PC Board –


1-621-050-11
SONY


6
7
8
9
10
PA-15
PA-14
PA-13
PA-12
PA-3
PA-2
PA-1
T5 DFT
T1
T2
L1
L2
ABL
REG OUT
CONV
HPARA
GND
HDRIVE
H.REF
PROTECT
+15V
GND
+115V


C2
L2
L1
FBT1
FBT2
HV
MV

PA Board

IC	
IC1	A-4
IC2	B-2
IC3	B-5
IC4	A-8
IC5	D-7

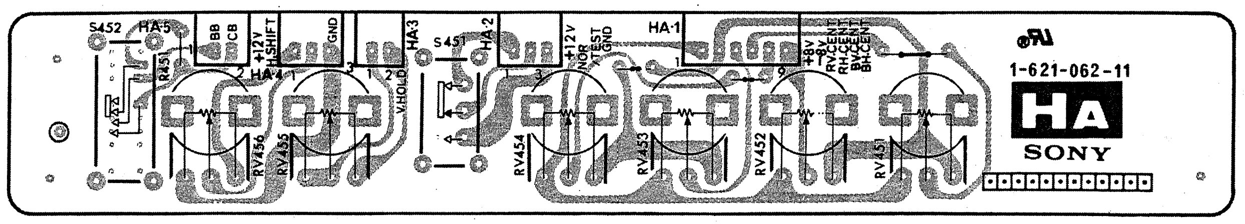
TRANSISTOR	
Q1	B-8
Q2	C-7
Q3	C-7
Q4	E-5
Q5	E-4
Q6	C-4
Q7	D-6
Q8	E-6
Q9	D-6
Q10	D-6
Q11	A-6
Q12	A-6
Q13	A-10
Q14	B-2

DIODE	
D1	D-10
D2	B-7
D3	E-4
D4	D-5
D7	D-2
D8	C-3
D9	C-3
D10	C-2
D11	C-2
D12	C-2
D13	B-2
D14	C-4
D15	B-5
D16	B-2
D17	B-4
D18	B-5
D20	A-3
D21	B-4
D22	B-3
D23	B-4
D24	B-4
D25	B-5
D26	B-3
D28	B-9
D29	D-6
D30	A-4
D31	A-8
D32	A-8
D33	A-3

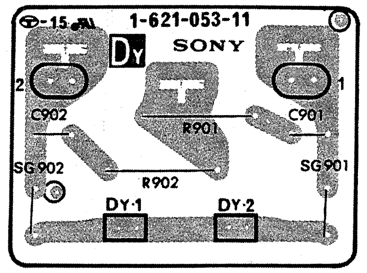
TEST POINT	
TP1	A-1
TP2	A-2
TP3	A-2
TP4	A-3
TP5	A-3
TP6	A-3
TP7	A-4
TP8	A-4
TP9	A-5

HA [CUSTOMER CONTROL] **X** [LAMP] **Y** [POWER IND] **DY** [DY]

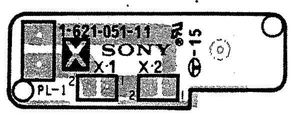
– HA Board –


S452
HA-5
HA-4
HA-3
HA-2
HA-1
S451
RV456
RV455
RV454
RV453
RV452
RV451
+12V
HSHIFT
GND
VHOLD
NOR
XTEST
1-621-062-11
HA
SONY

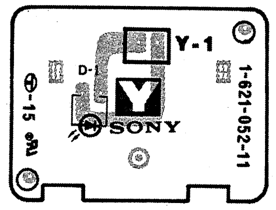
– DY Board –


1-621-053-11
DY
SONY
C902
C901
R901
R902
SG902
SG901
DY-1
DY-2

– X Board –

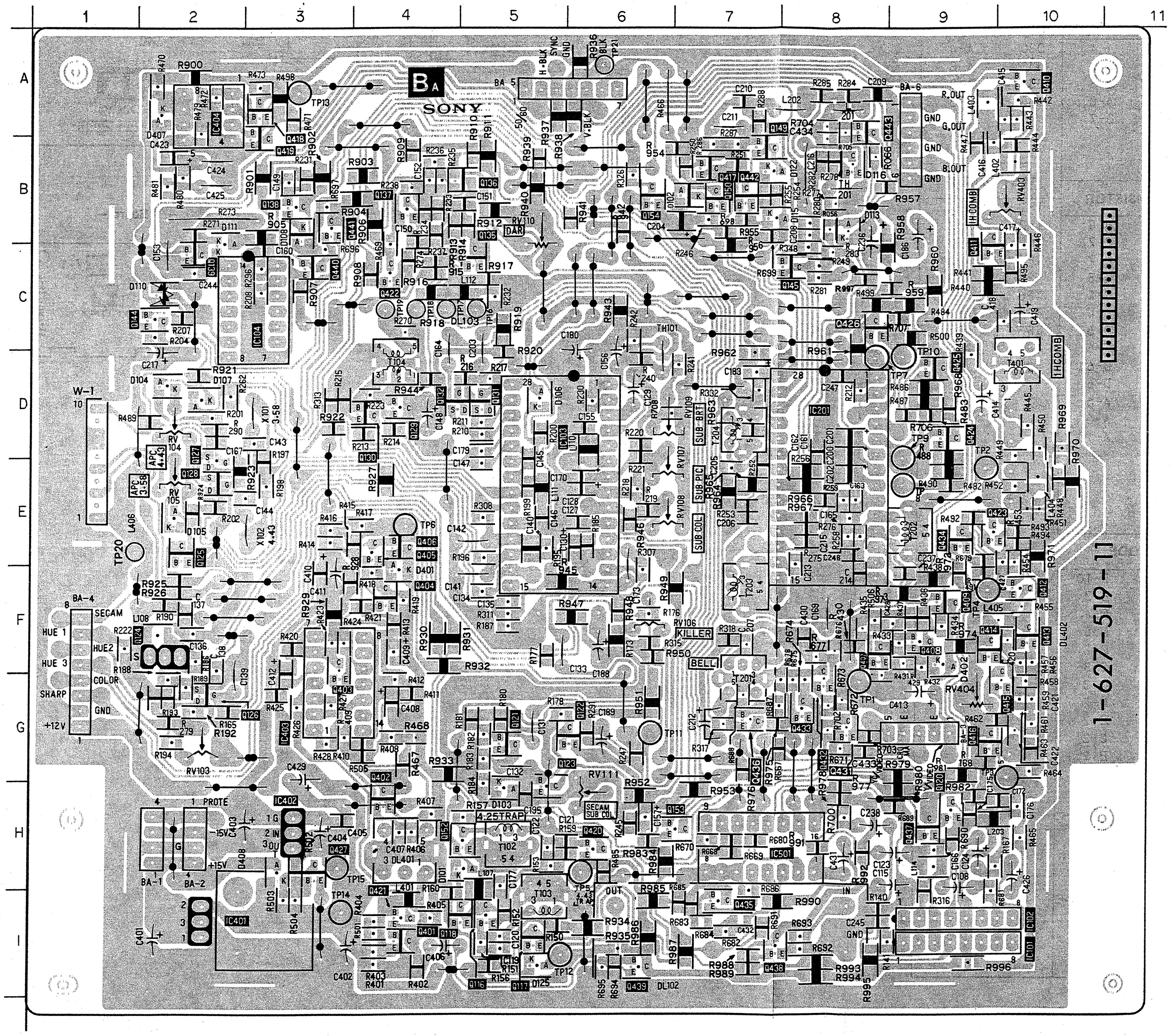

1-621-051-11
X
SONY
X-1
X-2
PL-1

– Y Board –

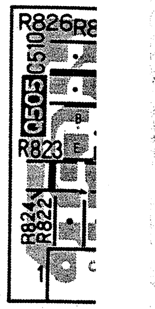

Y-1
D-1
Y
SONY
1-621-052-11

BA [PAL, SECAM, NTSC, DECORDER]

– BA Board –


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
BA
SONY
1-627-519-11
W-1
BA-4
BA-1
BA-2
BA-5
BA-6
SECAM
HUE 1
HUE 2
HUE 3
COLOR
SHARP
GND
+12V
PROTE
-15V
+15V
R.OUT
G.OUT
B.OUT
H-BLK
SYNC
V.BLK
TP10
TP11
TP12
TP13
TP14
TP15
TP20
IC101
IC102
IC103
IC104
IC201
IC401
IC402
IC403
IC404
IC501
4.25TRAP
KILLER
BELL
SUB PIC
SUB COL
SUB BRT
SECAM SUB COL
APC 4.43
APC 3.58
X101 3.58
X102 4.43
T401
RV403
RV404

– BC B

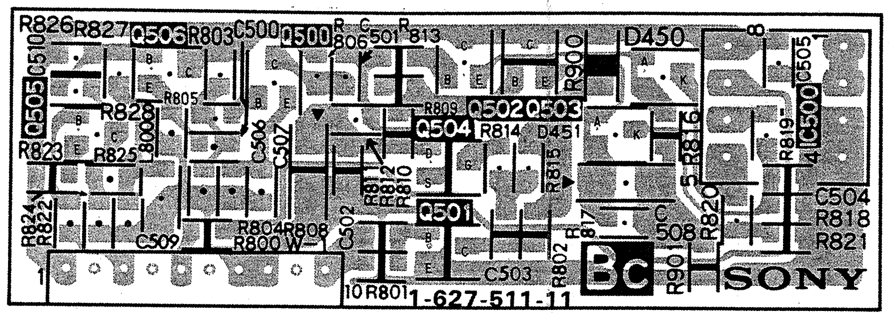


BA Board

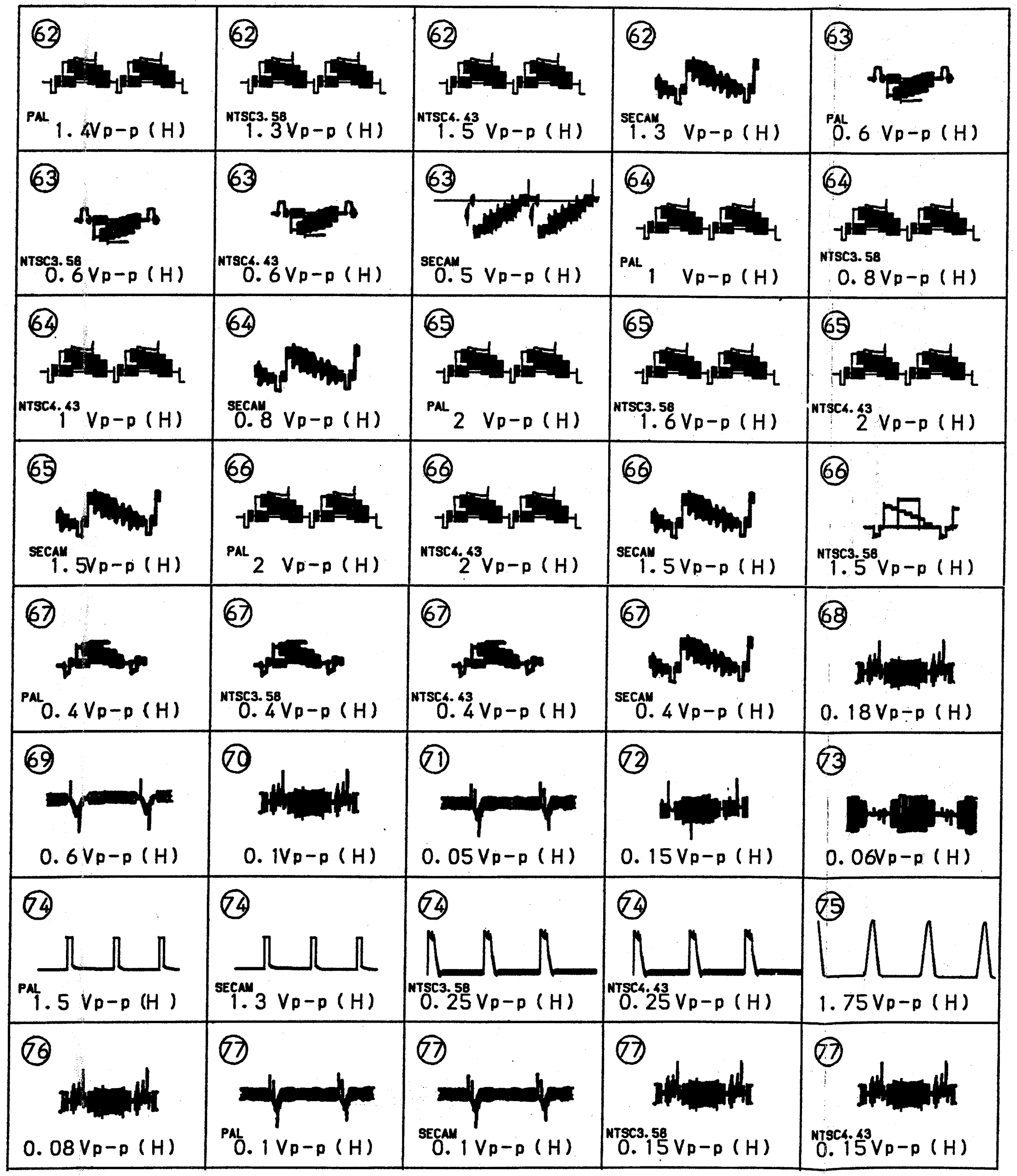
IC	
IC101	I-9
IC102	I-9
IC103	D-6
IC104	C-3
IC201	E-8
IC401	I-2
IC402	H-3
IC403	G-3
IC404	A-2
IC501	H-8
TRANSISTOR	
Q116	I-5
Q117	I-5
Q118	I-5
Q120	H-9
Q121	G-5
Q122	G-6
Q123	G-6
Q124	F-2
Q125	E-2
Q126	G-2
Q127	E-2
Q128	E-2
Q129	D-4
Q130	D-4
Q131	D-5
Q132	D-5
Q135	C-5
Q136	B-5
Q137	B-4
Q138	B-3
Q139	C-2
Q144	C-2
Q145	C-8
Q149	B-7
Q150	B-7
Q152	H-5
Q153	H-7
Q154	B-6
Q401	I-4
Q402	H-4
Q403	G-3
Q404	F-4
Q405	E-4
Q406	E-4
Q407	F-9
Q408	F-9
Q409	F-9
Q410	A-10
Q411	C-10
Q412	F-10
Q413	F-10
Q414	F-10
Q415	G-10
Q416	G-10
Q417	B-7
Q418	A-3
Q419	B-3
Q420	H-6
Q421	I-4
Q422	C-4
Q423	E-10
Q424	D-9
Q425	D-9
Q426	C-8
Q427	H-3
Q431	G-8
Q432	G-8
Q433	G-8
Q434	E-9
Q435	I-7
Q436	G-7
Q437	H-9
Q438	I-8
Q439	I-6
Q440	C-3
Q441	B-3
Q442	B-7
Q443	A-8
DIODE	
D101	H-3
D102	B-5
D103	H-5
D104	D-2
D105	E-2
D106	D-5
D107	D-2
D108	B-3
D110	C-2
D111	C-2
D113	B-8
D115	B-8
D116	B-9
D122	B-8
D125	I-5
D401	F-4
D402	F-9
D407	A-2
D408	H-3
VARIABLE RESISTOR	
RV103	G-2
RV104	D-2
RV105	E-2
RV106	F-6
RV107	E-7
RV108	E-7
RV109	D-7
RV110	B-5
RV111	H-6
RV403	B-10
RV404	G-9

Bc [YC/VIDEO AUTO DET
WHEN VPR-722S CONNECT]

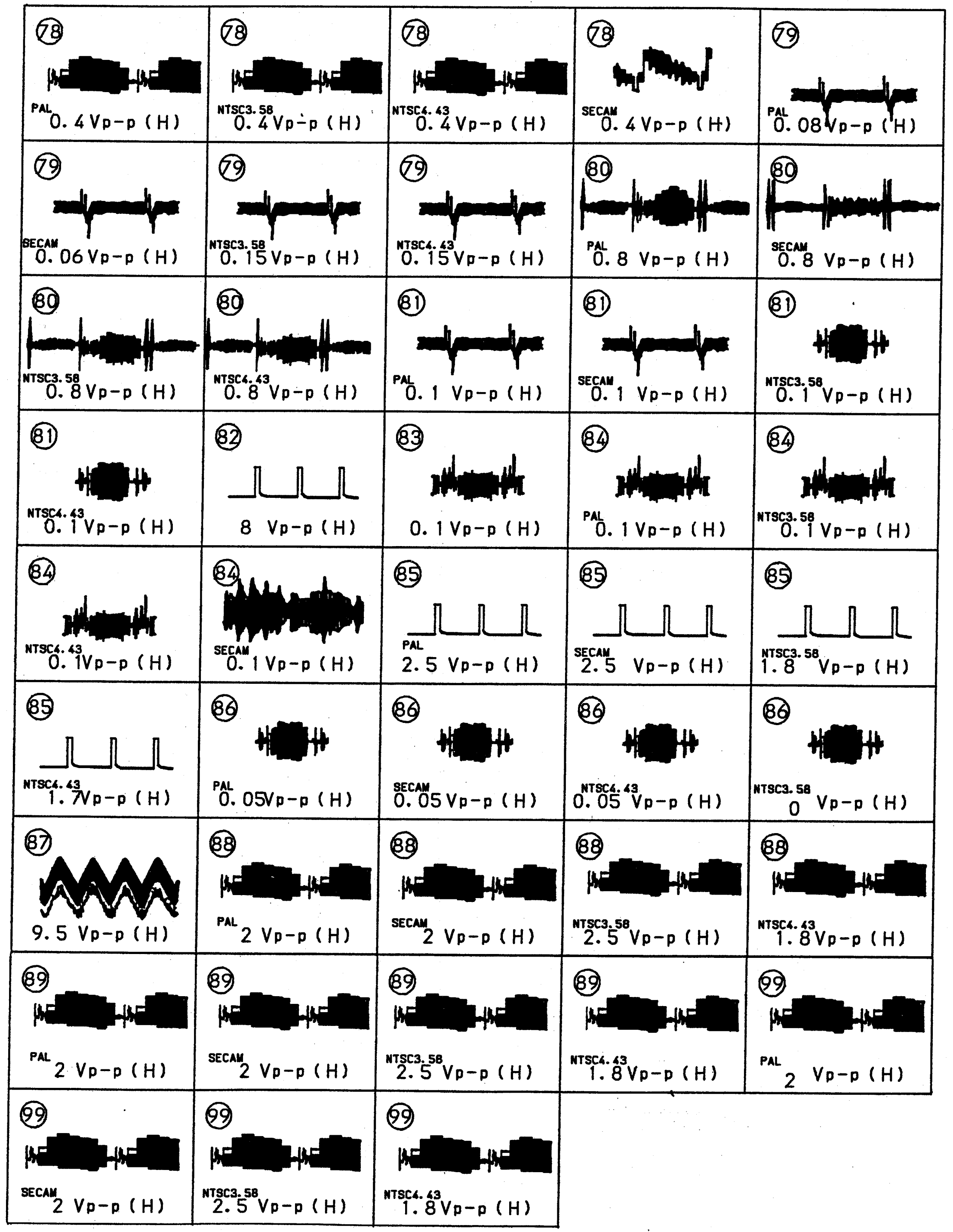
– BC Board –

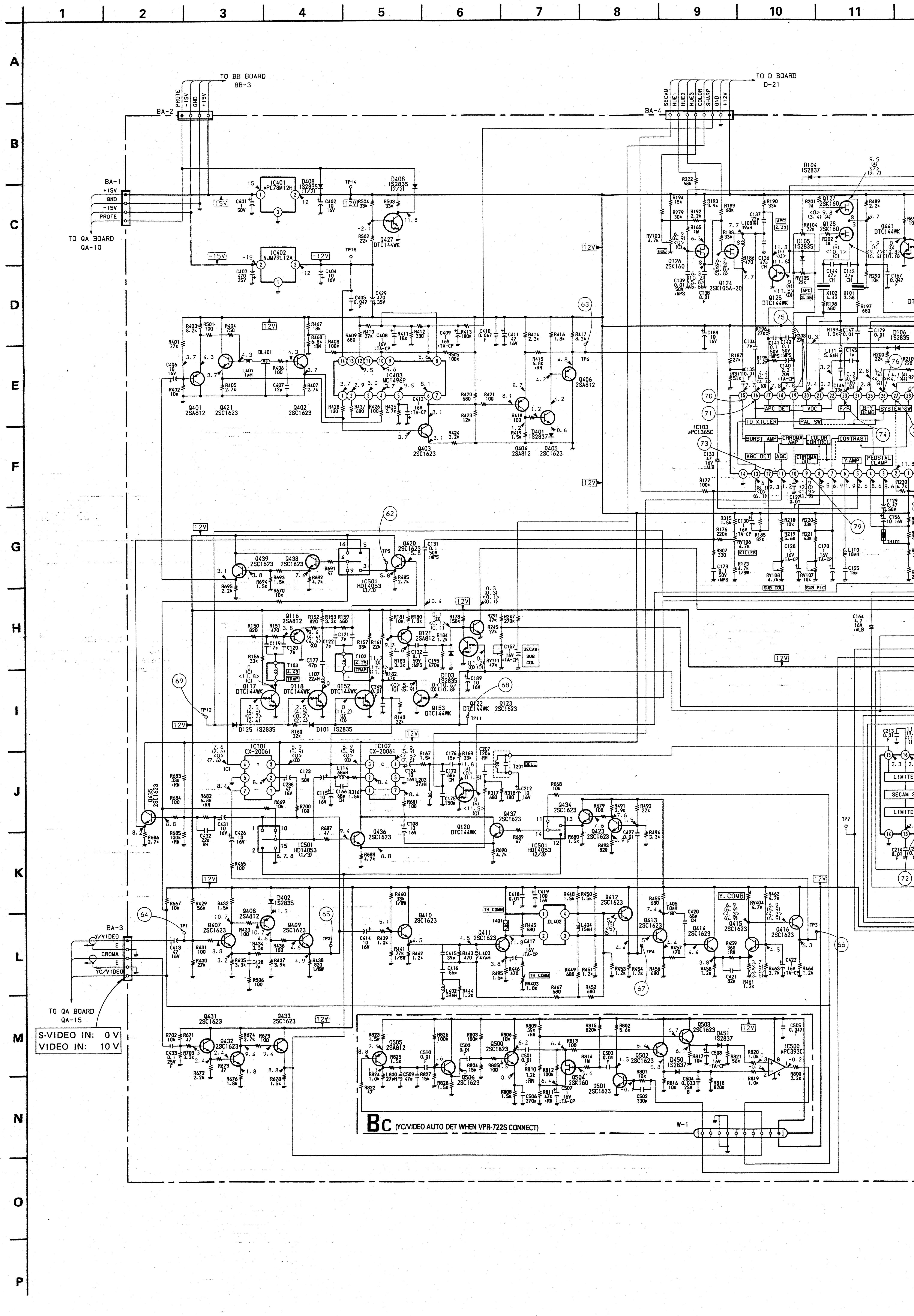

R826
R827
Q506
R803
C500
Q500
R806
C501
R813
D450
C510
Q505
R828
R805
R809
Q502
Q503
Q504
R814
D451
R816
R819
C500
C505
R823
R825
L800
C506
C507
R811
R812
R810
R815
R824
R822
C509
R804
R808
R800
W-1
C502
Q501
R817
C508
R820
C504
R818
R821
C503
R802
R901
R900
10
R801
1-627-511-11
1
4
5
8
Bc
SONY

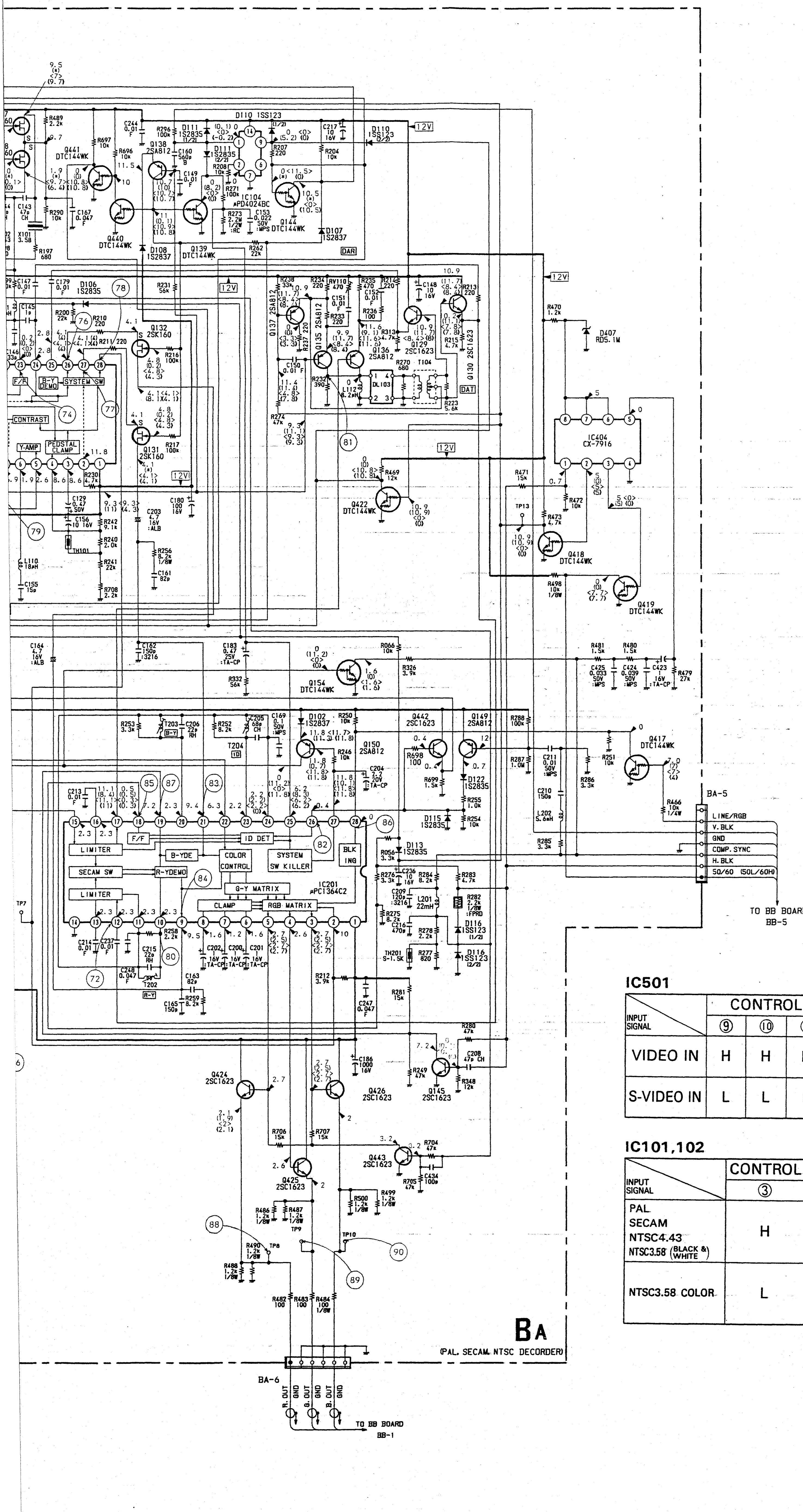
BA Board (1/2)



BA Board (2/2)




TO BB BOARD
BB-3
PROTE
-15V
GND
+15V
BA-2
TO D BOARD
D-21
SECAM
HUE1
HUE2
HUE3
COLOR
SHARP
GND
+12V
BA-4
BA-1
+15V
GND
-15V
PROTE
TO QA BOARD
QA-10
IC401
μPC78M12H
IC402
NJM79L12A
D408
1S2835
Q427
DTC144WK
IC403
MC1496P
DL401
Q401
2SA812
Q421
2SC1623
Q402
2SC1623
Q403
2SC1623
Q404
2SA812
Q405
2SC1623
Q406
2SA812
D401
1S2837
IC103
μPC1365C
APC DET
VOC
F/R
B-Y DEMO
SYSTEM SW
ID KILLER
PAL SW
BURST AMP
CHROMA AMP
COLOR CONTROL
CONTRAST
AGC DET
AGC
CHROMA OUT
Y-AMP
PEDSTAL CLAMP
Q126
2SK160
Q124
2SK105A-20
Q125
DTC144WK
Q127
2SK160
Q128
2SK160
Q441
DTC144WK
D104
1S2837
D105
1S2835
D106
1S2835
X102
4.43
X101
3.58
APC
HUE
KILLER
SUB COL
SUB PIC
TH101
Q420
2SC1623
Q439
2SC1623
Q438
2SC1623
IC501
HD14053
(3/3)
Q116
2SA812
Q117
DTC144WK
Q118
DTC144WK
Q152
DTC144WK
Q121
2SA812
Q153
DTC144WK
Q122
DTC144WK
Q123
2SC1623
D103
1S2835
D125 1S2835
D101 1S2835
T102
4.25
TRAP
T103
4.43
TRAP
SECAM SUB COL
IC101
CX-20061
IC102
CX-20061
T201
BELL
Q435
2SC1623
IC501
HD14053
(1/3)
Q436
2SC1623
Q120
DTC144WK
Q437
2SC1623
Q434
2SC1623
IC501
HD14053
(2/3)
Q423
2SC1623
BA-3
Y/VIDEO
E
CROMA
E
YC/VIDEO
TO QA BOARD
QA-15
S-VIDEO IN: 0 V
VIDEO IN: 10 V
Q407
2SC1623
Q408
2SA812
D402
1S2835
Q409
2SC1623
Q410
2SC1623
Q411
2SC1623
T401
1H COMB
DL402
Q412
2SC1623
Q413
2SC1623
Q414
2SC1623
Q415
2SC1623
Q416
2SC1623
Y. COMB
Q431
2SC1623
Q432
2SC1623
Q433
2SC1623
Q505
2SA812
Q506
2SC1623
Q500
2SC1623
Q504
2SK160
Q501
2SC1623
Q502
2SC1623
Q503
2SC1623
D450
1S2837
D451
1S2837
IC500
μPC393C
W-1
Bc (YC/VIDEO AUTO DET WHEN VPR-722S CONNECT)
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP11
TP12
TP14
TP15
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
79
1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P


BA
(PAL. SECAM. NTSC DECORDER)
IC201
μPC1364C2
IC404
CX-7916
IC104
μPD4024BC
D110 1SS123
LIMITER
SECAM SW
F/F
B-YDE
R-YDEMO
COLOR CONTROL
SYSTEM SW KILLER
ID DET
BLK ING
G-Y MATRIX
CLAMP
RGB MATRIX
CONTRAST
Y-AMP
PEDSTAL CLAMP
B-Y DEMO
SYSTEM SW
12V
DAR
DAT
BA-5
LINE/RGB
V.BLK
GND
COMP. SYNC
H.BLK
50/60 (50L/60H)
TO BB BOARD
BB-5
BA-6
R. OUT
GND
G. OUT
GND
B. OUT
GND
TO BB BOARD
BB-1
Q424 2SC1623
Q425 2SC1623
Q426 2SC1623
Q443 2SC1623
Q145 2SC1623
Q417 DTC144WK
Q418 DTC144WK
Q419 DTC144WK
Q422 DTC144WK
Q154 DTC144WK
Q442 2SC1623
Q149 2SA812
Q150 2SA812
D407 RD5.1M
TP7
TP8
TP9
TP10
TP13

BA	IC 101	CX-20061	NT.PAL.SW1	Q 419	DTC144WK	60/50 INV
	102	CX-20061	NT.PAL.SW2	420	2SC1623	Y BUFF-1
	103	μPC1365C	NT.PAL.DEM	421	2SC1623	APT DRIVE-1
	104	UPD4024BC	COL.MODE.SEL	422	DTC144WK	B/W SW
				423	2SC1623	CHROMA SW
	201	μPC1364C2	SECAM.DEM	424	2SC1623	R BUFF
				425	2SC1623	G BUFF
	401	μPC78M12H	+12VREG	426	2SC1623	B BUFF
	402	NJM79L12A	-12VREG	427	DTC144WK	PROTECTOR
	403	MC1496P	APT CTL			
	404	CX-7916	50/60CTL	431	2SC1623	CROMA BUFF-1
				432	2SC1623	CROMA AMP
	501	HD14053BP	S/W SW	433	2SC1623	CROMA BUFF-2
				434	2SC1623	NT C BUFF
	Q 116	2SA812	Y-AMP-5	435	2SC1623	NT Y AMP
	117	DTC144WK	TRAP SW-1	436	2SC1623	SECAM.C.BUFF
	118	DTC144WK	PAL SW-1	437	2SC1623	NT C BUFF
	120	DTC144WK	CHROMA SW	438	2SC1623	Y-BUFF-2
	121	2SA812	ID AMP	439	2SC1623	Y-BUFF-3
	122	DTC144WK	ID SW-1	440	DTC144WK	W/B SW-1
	123	2SC1623	ID SW-2	441	DTC144WK	W/B SW-2
	124	2SK105A-20	HUE CONT	442	2SC1623	BPT BUFF
	125	DTC144WK	PHASE SW-2	443	2SC1623	CUT OFF ADJ
	126	2SK160	PHASE CONT-1			
	127	2SK160	OSC SW-1			
	128	2SK160	OSC SW-2			
	129	2SC1623	DAT BUFF-1	D 101	1S2835	SW-2
	130	2SC1623	DAT BUFF-2	102	1S2837	LEVEL SHIFT-1
	131	2SK160	B-Y SW	103	1S2835	SLICE
	132	2SK160	R-Y SW	104	1S2837	APC SW-1
				105	1S2835	APC SW-2
	135	2SA812	PAL AMP	106	1S2835	PROT-3
	136	2SA812	SECAM AMP	107	1S2837	TRAP SW-2
	137	2SA812	NTSC SW	108	1S2837	LEVEL SHIFT-2
	138	2SA812	COL SW	110	1SS123	PROT-1
	139	DTC144WK	SYSTEM SW-2	111	1S2835	SYSTEM SW
				113	1S2835	SW-1
	Q 144	DTC144WK	SYSTEM SW-1	115	1S2835	GATE-1
	145	2SC1623	INV-1	116	1SS123	GATE-3/CL
	149	2SA812	INV-2	122	1S2835	GATE-2
	150	2SA812	SECAM SW-1	125	1S2835	TRAP SW-1
	152	DTC144WK	TRAP SW-2			
	153	DTC144WK	TRAP SW-3	401	1S2837	LEVEL SHIFT-3
	154	DTC144WK	SECAM SW-2	402	1S2835	LEVEL SHIFT-4
	401	2SA812	Y BUFF-4			
	402	2SC1623	APT DRIVE-1			
	403	2SC1623	Y AMP-1			
	404	2SA812	Y AMP-2	407	RD5.1M	50/60 VCC
	405	2SC1623	Y AMP-3	408	1S2835	PROTE
	406	2SA812	Y AMP-4			
	407	2SC1623	VIDEO AMP-1			
	408	2SA812	VIDEO AMP-2			
	409	2SC1623	VIDEO BUFF			
	410	2SC1623	COMB BUFF			
	411	2SC1623	COMB AMP			
	412	2SC1623	CHROMA BUFF			
	413	2SC1623	COMB Y AMP-1			
	414	2SC1623	COMB Y AMP-2			
	415	2SC1623	COMB Y AMP-3			
	416	2SC1623	COMB Y BUFF			
	417	DTC144WK	BLK SW			
	418	DTC144WK	50/60 INV			

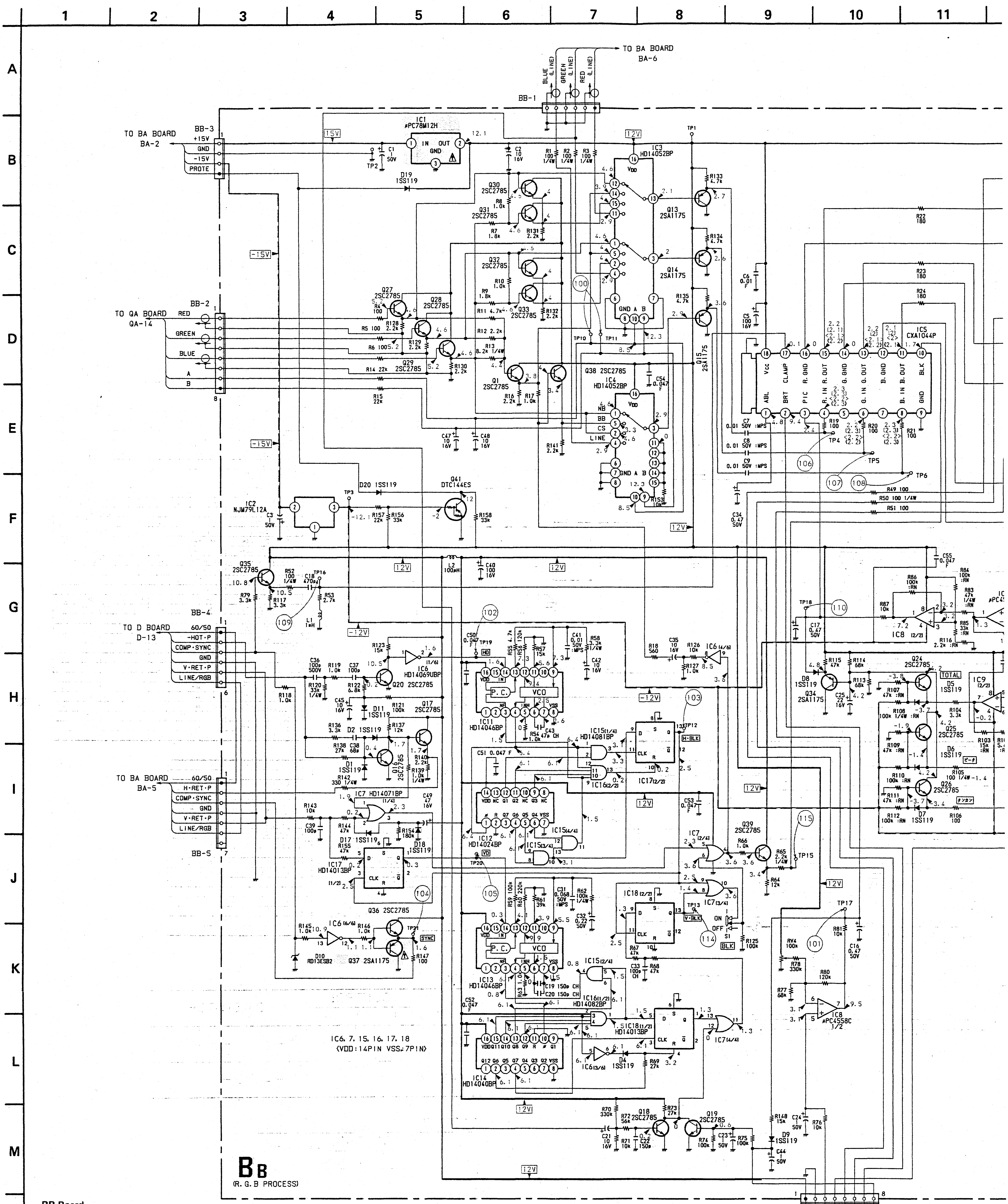
BC	IC 500	UPC393C	S/V SW
	Q 500	2SC1623	C.AMP-1
	501	2SC1623	BGP SW-1
	502	2SC1623	PEAK HOLD-1
	503	2SC1623	PEAK HOLD-2
	504	2SK160	BGP SW-2
	505	2SA812	C.AMP-2
	506	2SC1623	C.BUFF
	D 450	1S2837	PEAK HOLD-1
	451	1S2837	PEAK HOLD-2

IC501

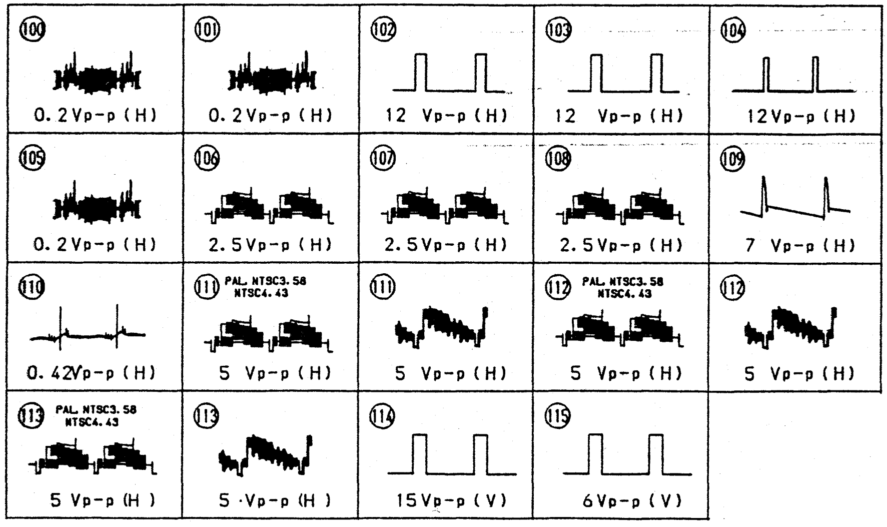
INPUT SIGNAL	CONTROL			ON SWITCH		
	⑨	⑩	⑪			
VIDEO IN	H	H	H	③-④	①-⑮	⑬-⑭
S-VIDEO IN	L	L	L	⑤-④	②-⑮	⑫-⑭

IC101,102

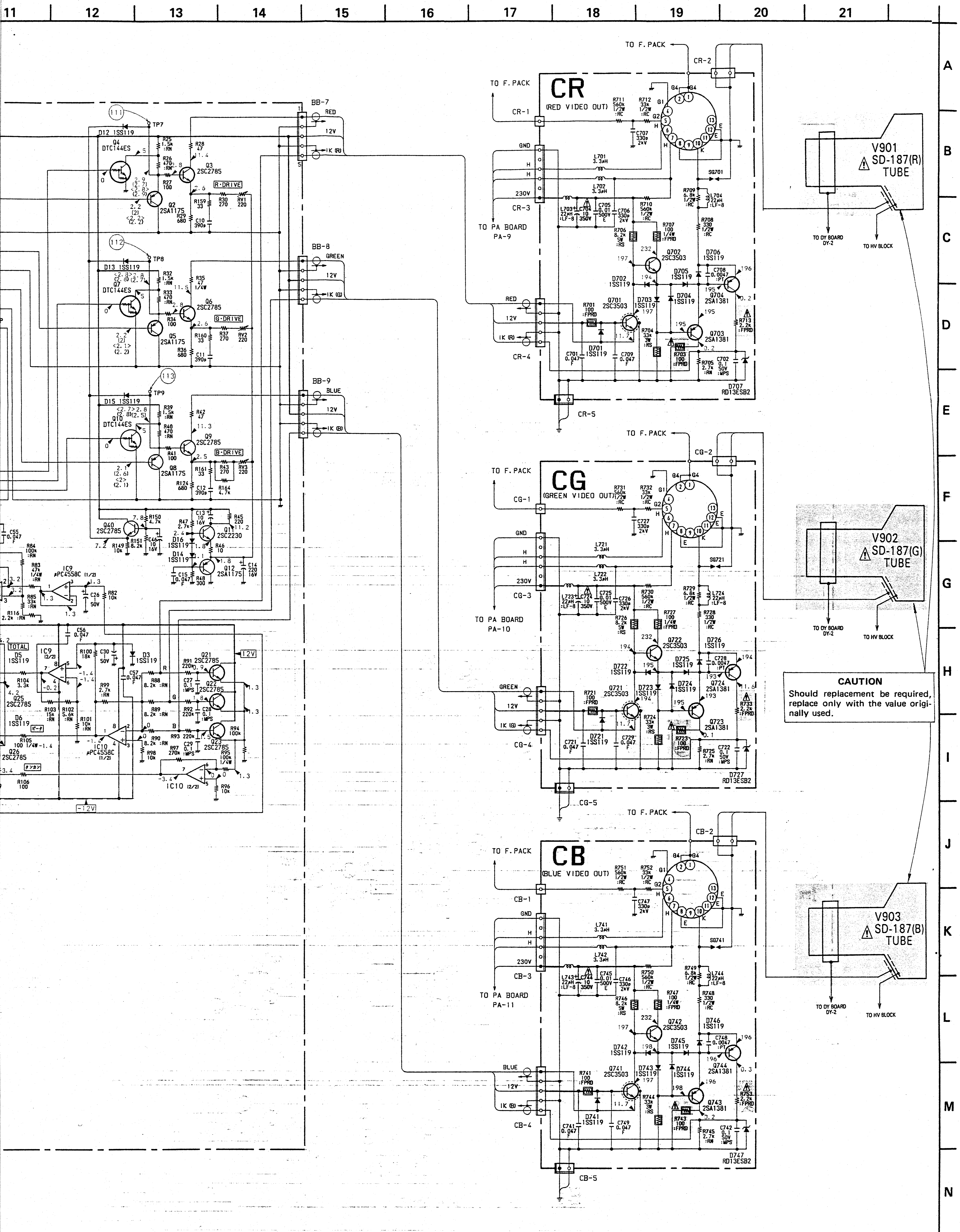
INPUT SIGNAL	CONTROL	ON SWITCH
	③	
PAL SECAM NTSC4.43 NTSC3.58 (BLACK & WHITE)	H	②-④
NTSC3.58 COLOR	L	⑦-④


TO BA BOARD BA-6
BLUE (LINE)
GREEN (LINE)
RED (LINE)
BB-1
TO BA BOARD BA-2
BB-3
+15V
GND
-15V
PROTE
IC1 μPC78M12H
IC2 NJM79L12A
IC3 HD14052BP
IC4 HD14052BP
IC5 CXA1044P
TO QA BOARD QA-14
BB-2
RED
GREEN
BLUE
A
B
TO D BOARD D-13
BB-4
60/50
-HOT·P
COMP·SYNC
GND
V·RET·P
LINE/RGB
TO BA BOARD BA-5
BB-5
60/50
H·RET·P
COMP·SYNC
GND
V·RET·P
LINE/RGB
IC6 HD14069UBP
IC7 HD14071BP
IC8 μPC4558C
IC11 HD14046BP
IC12 HD14024BP
IC13 HD14046BP
IC14 HD14040BP
IC15 HD14081BP
IC16 HD14082BP
IC17 HD14013BP
IC18 HD14013BP
IC6, 7, 15, 16, 17, 18 (VDD:14PIN VSS:7PIN)
BB-6
+12V
GND
BRT
PIC
R·RAS OFF/ON
G·RAS
B·RAS
DOT/HATCH
TO D BOARD D-23
BB (R. G. B PROCESS)

BB Board



BB	IC	1	UPC78M12H	+12V REG	IC	15	HD14081BP	GATE-1	Q	9	2SC2785	B·DRIVE	Q	23	2SC2785	IK (B) B
		2	NJM79L12A	-12V REG		16	HD14082BP	GATE-2		10	DTC144ES	B·RAS SW		24	2SC2785	TOTAL
		3	HD14052BP	REG SW (R·G)		17	HD14013BP	H·V BLK-1		11	2SC2230	BAIAS-1		25	2SC2785	PEAK A
		4	HD14052BP	REG SW (B)		18	HD14013BP	H·V BLK-2		12	2SA1175	BAIAS-2		26	2SC2785	S·T AB
		5	CXA1044P	PIC/BRT CONT						13	2SA1175	R·BUFF-2		27	2SC2785	R·BUFF
		6	HD14069UBP	INV						14	2SA1175	G·BUFF-2		28	2SC2785	G·BUFF
		7	HD14071BP	V·BLK	Q	1	2SC2785	B·B BUFF-1		15	2SA1175	B·BUFF-2		29	2SC2785	B·BUFF
		8	μPC4558C	LEVEL SHIFT		2	2SA1175	R·BUFF-3		16	2SC2785	H·P INV-1		30	2SC2785	C·B (R)
		9	μPC4558C	PIC BUFF		3	2SC2785	R·DRIVE		17	2SC2785	H·P BUFF		31	2SC2785	C·B (R)
		10	μPC4558C	ABL		4	DTC144ES	R·RAS SW		18	2SC2785	DOT SW-1		32	2SC2785	C·B (G)
		11	HD14046BP	H·PLL		5	2SA1175	G·BUFF-3		19	2SC2785	DOT SW-2		33	2SC2785	C·B (G)
		12	HD14024BP	H·COUNTER		6	2SC2785	G·DRIVE		20	2SC2785	H·P INV		34	2SA1175	PIC AB
		13	HD14046BP	V·PLL		7	DTC144ES	G·RAS SW		21	2SC2785	IK (R) BUFF		35	2SC2785	SYNC B
		14	HD14040BP	V·COUNTER		8	2SA1175	B·BUFF-3		22	2SC2785	IK (G) BUFF		36	2SC2785	SINC B

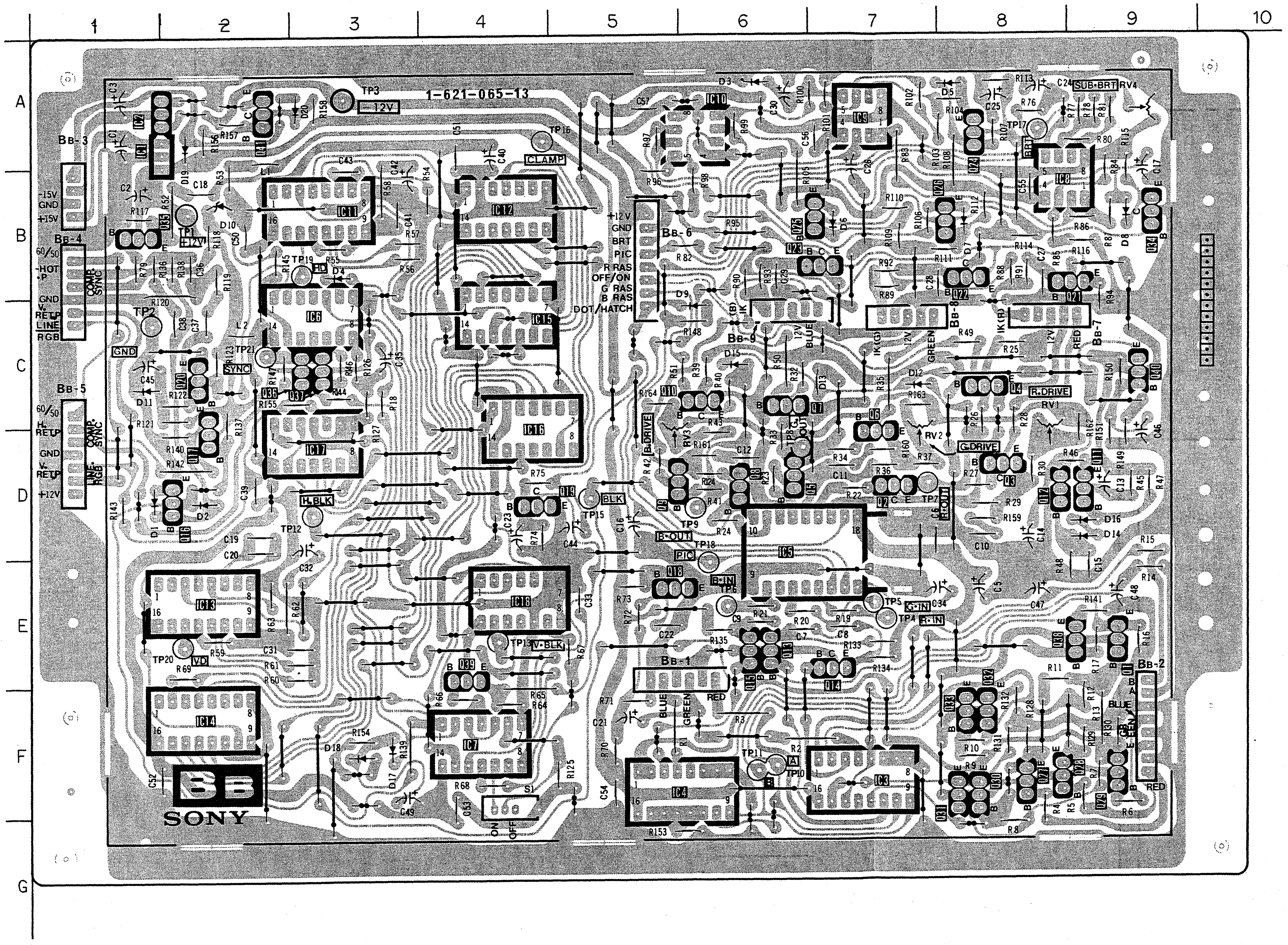

11
12
13
14
15
16
17
18
19
20
21
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
TO F.PACK
CR-2
CR
(RED VIDEO OUT)
CR-1
GND
H
230V
CR-3
TO PA BOARD
PA-9
RED
12V
IK (R)
CR-4
CR-5
Q701
2SC3503
Q702
2SC3503
Q703
2SA1381
Q704
2SA1381
D707
RD13ESB2
V901
SD-187(R)
TUBE
TO DY BOARD
DY-2
TO HV BLOCK
CG
(GREEN VIDEO OUT)
CG-1
CG-2
CG-3
TO PA BOARD
PA-10
GREEN
IK (G)
CG-4
CG-5
Q721
2SC3503
Q722
2SC3503
Q723
2SA1381
Q724
2SA1381
D727
RD13ESB2
V902
SD-187(G)
TUBE
CB
(BLUE VIDEO OUT)
CB-1
CB-2
CB-3
TO PA BOARD
PA-11
BLUE
IK (B)
CB-4
CB-5
Q741
2SC3503
Q742
2SC3503
Q743
2SA1381
Q744
2SA1381
D747
RD13ESB2
V903
SD-187(B)
TUBE
BB-7
BB-8
BB-9
R-DRIVE
G-DRIVE
B-DRIVE
TP7
TP8
TP9
Q3
2SC2785
Q6
2SC2785
Q9
2SC2785
Q4
DTC144ES
Q7
DTC144ES
Q10
DTC144ES
Q2
2SA1175
Q5
2SA1175
Q8
2SA1175
Q40
2SC2785
Q11
2SC2230
Q12
2SA1175
IC9
μPC4558C
IC10
μPC4558C
Q21
2SC2785
Q22
2SC2785
Q23
2SC2785
Q25
2SC2785
Q26
2SC2785
TOTAL
12V
-12V

CAUTION
Should replacement be required, replace only with the value originally used.

2SC2785	IK (B) BUFF	Q 37	2SA1175	SYNC BUFF-3	D 10	RD13ESB2	PROTECTOR	CR	Q 701	2SC3503	R-VIDEO AMP	CG	Q 721	2SC3503	G-VIDEO AMP	CB	Q 741	2SC3503	B-VIDEO AMP
2SC2785	TOTAL ABL	38	2SC2785	B·B BUFF-2	11	1SS119	CLAMP-2		702	2SC3503	R-VIDEO OUT		722	2SC3503	G-VIDEO OUT		742	2SC3503	B-VIDEO OUT
2SC2785	PEAK ABL	39	2SC2785	BLK BUFF	12	1SS119	R·LIMIT		703	2SA1381	R-IK DET-1		723	2SA1381	G-IK DET-1		743	2SA1381	B-IK DET-1
2SC2785	S·T ABL	40	2SC2785	LIMITER	13	1SS119	G·LIMIT		704	2SA1381	R-IK DET-2		724	2SA1381	G-IK DET-2		744	2SA1381	B-IK DET-2
2SC2785	R·BUFF-1	41	DTC144ES	-12V PROTE	14	1SS119	BAIAS-1		D 701	1SS119	R-PROTECT-1		D 721	1SS119	G-PROTECT-1		D 741	1SS119	B-PROTECT-1
2SC2785	G·BUFF-1	D 1	1SS119	H·P SUP-1	15	1SS119	B·LIMIT		702	1SS119	R-PROTECT-2		722	1SS119	G-PROTECT-2		742	1SS119	B-PROTECT-2
2SC2785	B·BUFF-1	2	1SS119	H·P SUP-2	16	1SS119	BAIAS-2		703	1SS119	R-BIAS		723	1SS119	G-BIAS		743	1SS119	B-BIAS
2SC2785	C·B (R) BUFF-1	3	1SS119	CLAMP-1	17	1SS119	V·P DL-1		704	1SS119	R-PROTECT-3		724	1SS119	G-PROTECT-3		744	1SS119	B-PROTECT-3
2SC2785	C·B (R) BUFF-2	4	1SS119	V·RESET SW	18	1SS119	V·P DL-2		705	1SS119	R-PROTECT-4		725	1SS119	G-PROTECT-4		745	1SS119	B-PROTECT-4
2SC2785	C·B (G) BUFF-1	5	1SS119	TOTAL ABL	19	1SS119	PROTE-1		706	1SS119	R-PROTECT-5		726	1SS119	G-PROTECT-5		746	1SS119	B-PROTECT-5
2SC2785	C·B (G) BUFF-2	6	1SS119	PEAK ABL	20	1SS119	PROTE-2		707	RD13ESB2	R-PROTECT-6		727	RD13ESB2	G-PROTECT-6		747	RD13ESB2	B-PROTECT-6
2SA1175	PIC ABL	7	1SS119	S.T ABL															
2SC2785	SYNC BUFF-1	8	1SS119	PIC ABL															
2SC2785	SINC BUFF-2	9	1SS119	BRT SW															

BB [R·G·B PROCESS]

– BB Board –


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
1-621-065-13
BB-1
BB-2
BB-3
BB-4
BB-5
BB-6
BB-7
BB-8
BB-9
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
IC18
-12V
+12V
CLAMP
SUB-BRT
SYNC
H.BLK
V-BLK
BLK
B-OUT
B-IN
G-IN
R-IN
G-OUT
R-DRIVE
G-DRIVE
B-DRIVE
PIC
VD
GND
-15V
+15V
60/50
-HOT
+P
COMP. SYNC
V.RET.P
H.RET.P
LINE RGB
+12V
GND
BRT
PIC
R RAS
OFF/ON
G RAS
B RAS
DOT/HATCH
BLUE
GREEN
RED
ON
OFF
SONY
BB

BB Board

IC	
IC1	A-2
IC2	A-2
IC3	F-7
IC4	F-6
IC5	E-7
IC6	C-3
IC7	F-4
IC8	B-9
IC9	A-7
IC10	A-6
IC11	B-3
IC12	B-4
IC13	E-2
IC14	F-2
IC15	C-4
IC16	D-4
IC17	D-3
IC18	E-4

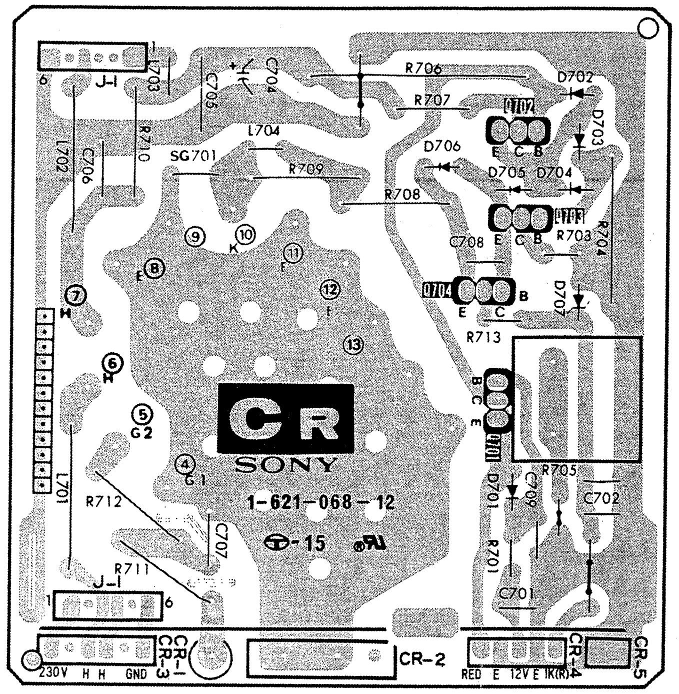
TRANSISTOR	
Q1	E-9
Q2	D-7
Q3	D-8
Q4	C-8
Q5	D-6
Q6	D-7
Q7	C-6
Q8	D-6
Q9	D-6
Q10	C-6
Q11	D-9
Q12	D-9
Q13	E-6
Q14	E-7
Q15	E-6
Q16	D-2
Q17	D-2
Q18	E-6
Q19	D-4
Q20	C-2
Q21	B-9
Q22	B-8
Q23	B-7
Q24	A-8
Q25	B-7
Q26	B-8
Q27	F-8
Q28	F-9
Q29	F-9
Q30	F-8
Q31	F-8
Q32	F-8
Q33	F-8
Q34	B-9
Q35	B-1
Q36	C-3
Q37	C-3
Q38	E-9
Q39	E-4
Q40	C-9
Q41	A-2

DIODE	
D1	D-1
D2	D-2
D3	A-6
D4	B-3
D5	A-8
D6	B-7
D7	B-8
D8	B-9
D9	C-6
D10	B-2
D11	C-1
D12	C-7
D13	C-7
D14	D-9
D15	C-6
D16	D-9
D17	F-3
D18	F-3
D19	A-2
D20	A-3

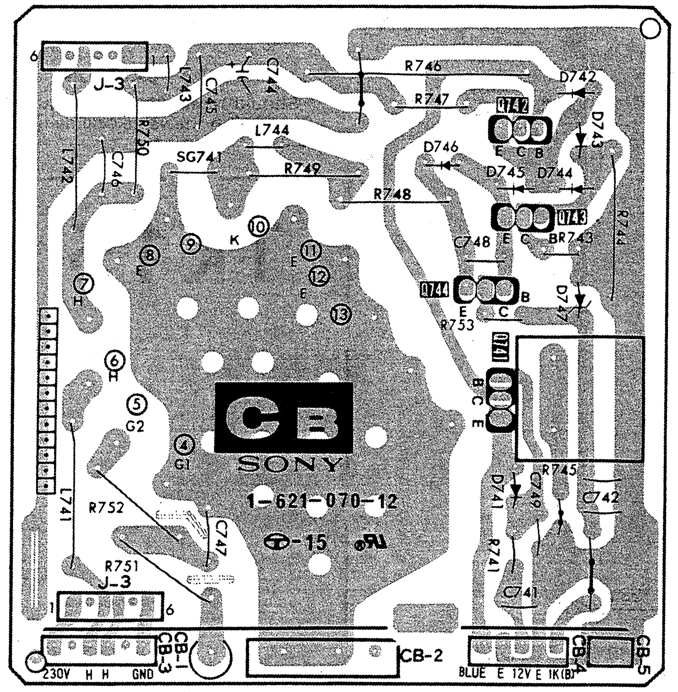
VARIABLE RESISTOR	
RV1	D-8
RV2	D-7
RV3	D-6
RV4	A-9

CR [RED VIDEO OUT] **CG** [GREEN VIDEO OUT] **CB** [BLUE VIDEO OUT]

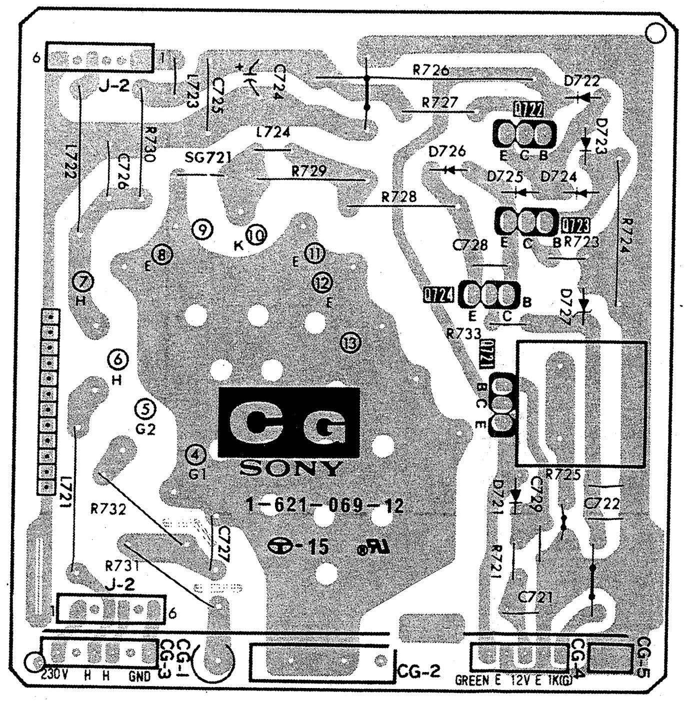
– CR Board –


J-1
L703
C705
C704
R706
D702
R707
Q702
D703
L704
R710
L702
C706
SG701
R709
D706
D705
D704
R708
Q703
R703
C708
R704
Q704
D707
R713
Q701
CR
SONY
1-621-068-12
-15
R705
C709
D701
C702
R712
L701
C707
R701
R711
C701
J-1
CR-1
CR-3
CR-2
CR-4
CR-5
230V H H GND
RED E 12V E 1K(R)

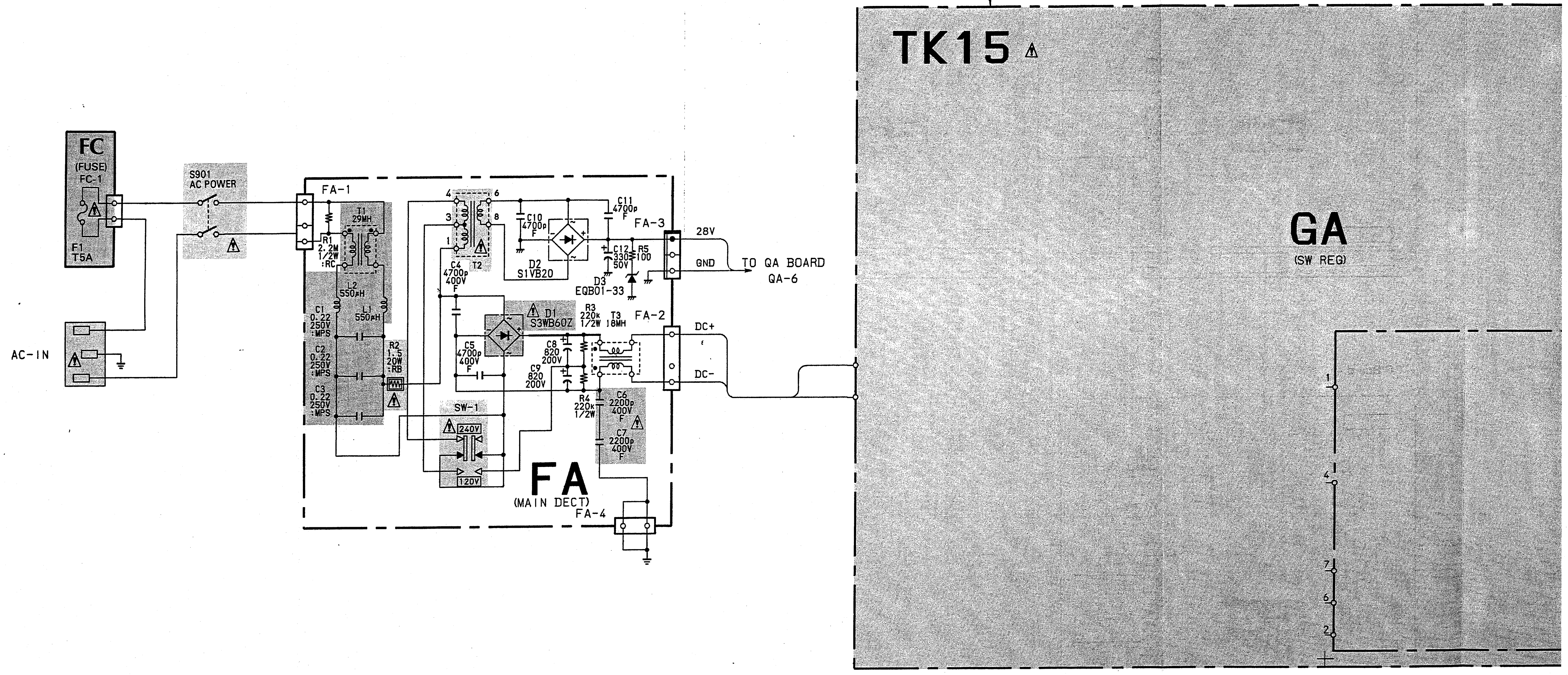
– CB Board –


J-3
L743
C745
C744
R746
D742
R747
Q742
D743
L744
R750
L742
C746
SG741
R749
D746
D745
D744
R748
Q743
C748
R743
R744
Q744
D747
R753
Q741
CB
SONY
1-621-070-12
-15
R745
D741
C749
C742
R752
L741
C747
R741
R751
C741
J-3
CB-1
CB-3
CB-2
CB-4
CB-5
230V H H GND
BLUE E 12V E 1K(B)

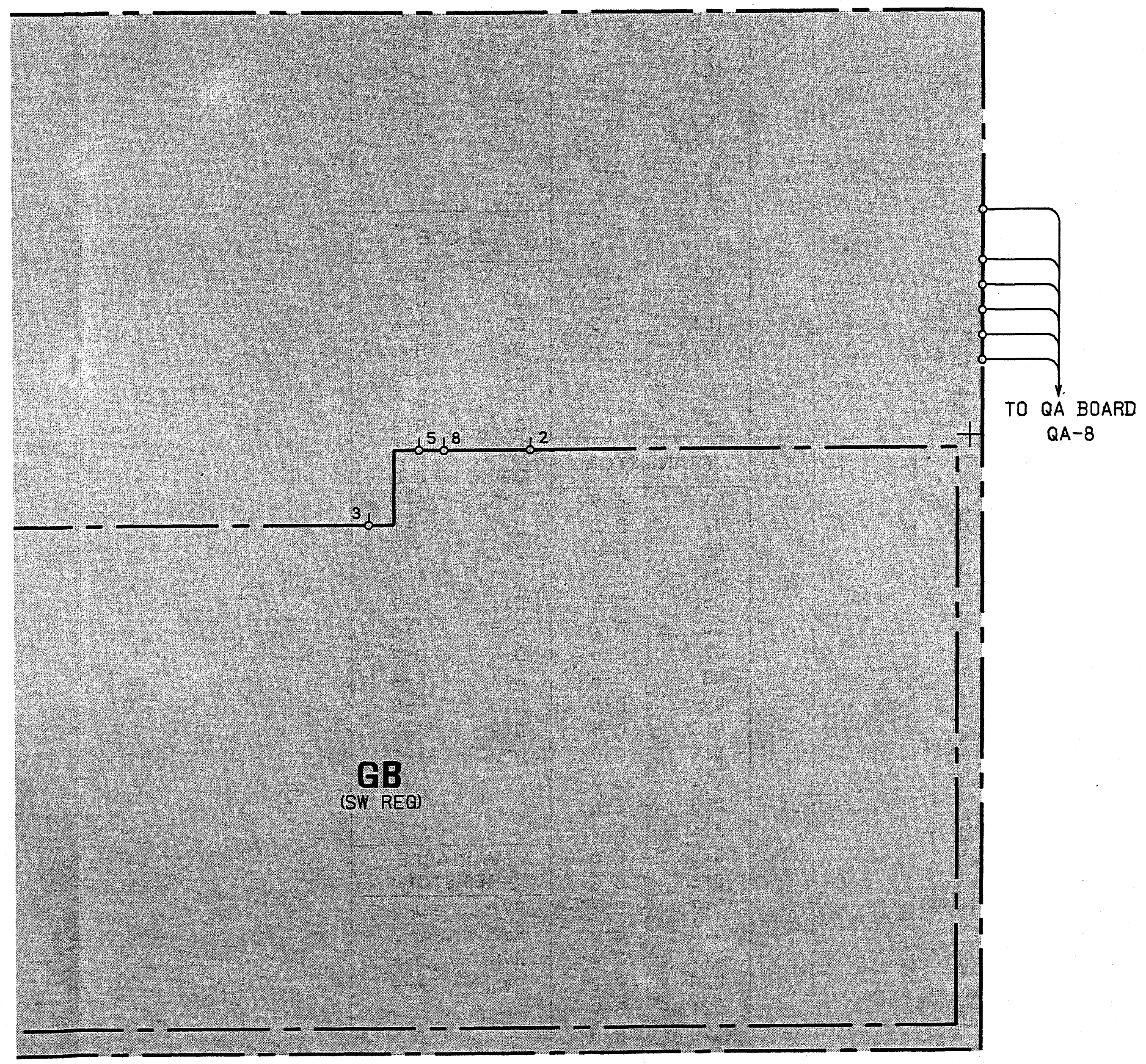
– CG Board –


J-2
L723
C725
C724
R726
D722
R727
Q722
D723
L724
R730
L722
C726
SG721
R729
D726
D725
D724
R728
Q723
C728
R723
R724
Q724
D727
R733
Q721
CG
SONY
1-621-069-12
-15
R725
D721
C729
C722
R732
L721
C727
R721
R731
C721
J-2
CG-1
CG-3
CG-2
CG-4
CG-5
230V H H GND
GREEN E 12V E 1K(G)

CAUTION
Should replacement be required, replace only with the value originally used.

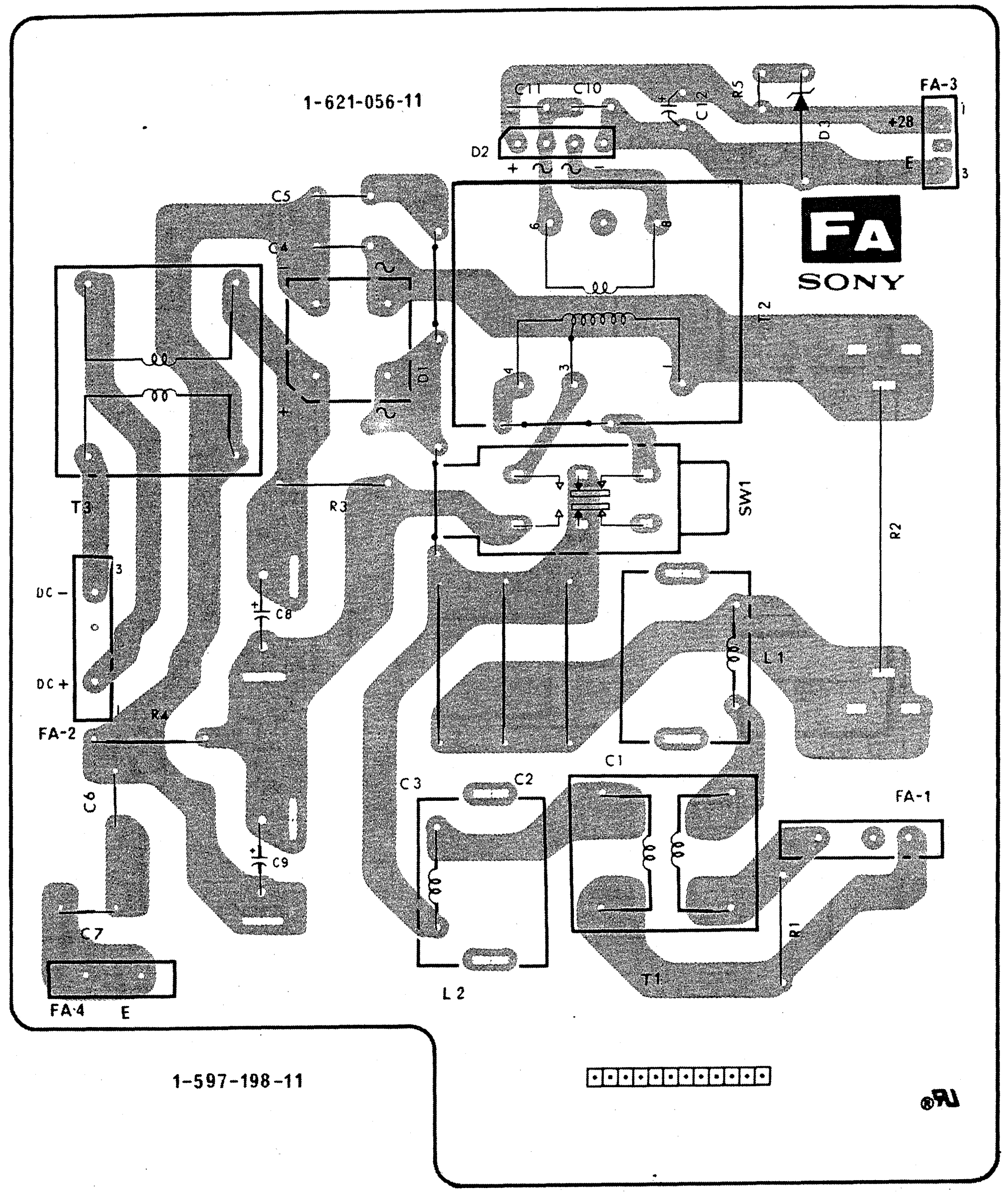

FC
(FUSE)
FC-1
F1
T5A
S901
AC POWER
AC-IN
FA-1
R1
2.2M
1/2W
:RC
T1
29MH
L2
550µH
L1
550µH
C1
0.22
250V
:MPS
C2
0.22
250V
:MPS
C3
0.22
250V
:MPS
R2
1.5
20W
:RB
C4
4700p
400V
F
T2
C10
4700p
F
C11
4700p
F
D2
S1VB20
C12
330
50V
R5
100
D3
EQB01-33
FA-3
28V
GND
TO QA BOARD
QA-6
D1
S3WB60Z
R3
220k
1/2W
T3
18MH
FA-2
DC+
DC-
C5
4700p
400V
F
C8
820
200V
C9
820
200V
R4
220k
1/2W
C6
2200p
400V
F
C7
2200p
400V
F
SW-1
240V
120V
FA
(MAIN DECT)
FA-4
TK15
GA
(SW REG)

FA	D	1	S3WB60Z	MAIN RECT
		2	S1VB-20	RM RECT
		3	EQB01-33	33V ZENER

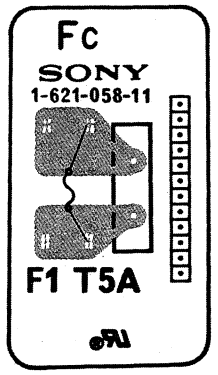

3
5
8
2
TO QA BOARD
QA-8
GB
(SW REG)

FA [RECT] **FC** [FUSE]

– FA Board –

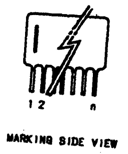

1-621-056-11
C11
C10
C12
R5
D3
FA-3
+28
E
1
3
D2
C5
C4
T2
FA
SONY
D1
T3
R3
SW1
R2
DC –
DC +
C8
FA-2
R4
L1
C3
C2
C1
FA-1
C6
C9
C7
FA-4
E
L2
T1
R1
1-597-198-11

– FC Board –

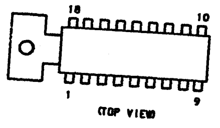

Fc
SONY
1-621-058-11
F1 T5A

7-6. SEMICONDUCTORS

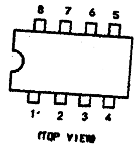
BX-1121
BX1122


1 2 n
MARKING SIDE VIEW

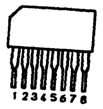
CXA1044AP


18 10
1 9
(TOP VIEW)

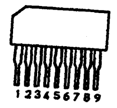
CX-7916
NJM4558D
TL082CP
µPC393C
µPC4558C
µPC4570C


8 7 6 5
1 2 3 4
(TOP VIEW)

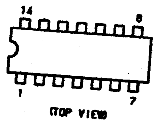
CX-7948
CX20061
M5218L



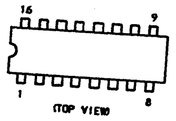
CX-894



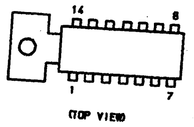
HD14069UBP
MC1496P
TC4024BP
TC4071BP
TC4081BP
TC4082BP
µPC1394C
µPC339C
µPD4024BC


14 8
1 7
(TOP VIEW)

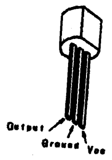
HD14046BP
HD14052BP
HD14053BP
MC14052BCP
TC4040BP


16 9
1 8
(TOP VIEW)

LA2600


14 8
1 7
(TOP VIEW)

NJM78L09A
NJM78L12A


Output
Ground
Vcc

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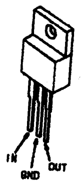
NJM78M09A
NJM78M12A
µPC78M08H
µPC78M12H



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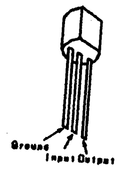
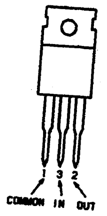
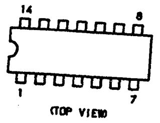

Ground
Input
Output

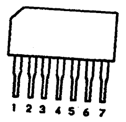
NJM79M08A
NJM79M12A


1 3 2
COMMON IN OUT

TC504013BP


14 8
1 7
(TOP VIEW)

µPC1037HA



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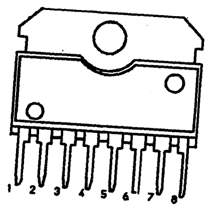

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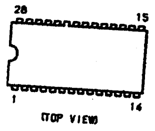
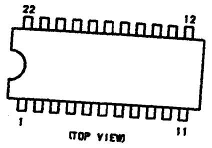
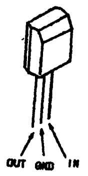
µPC1365C


28 15
1 14
(TOP VIEW)

µPC1377C


22 12
1 11
(TOP VIEW)

µPC78L12



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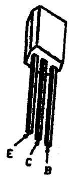
DTC144WS



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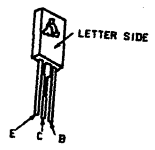
2SA1381
2SA1381-D
2SC2688
2SC3503


LETTER SIDE
E C B

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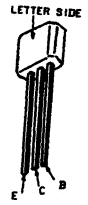
2SC2785


LETTER SIDE
E C B

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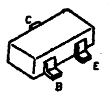

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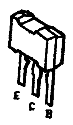

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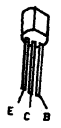

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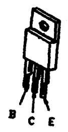
2SC3163
2SC3675
2SD1399-CA
2SD1406



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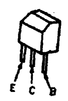

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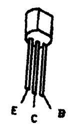

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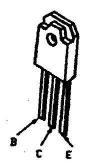

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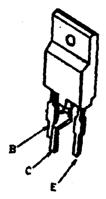
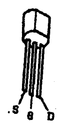


2SK105A
2SK105A-20



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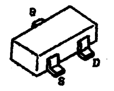

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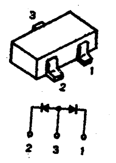

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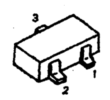

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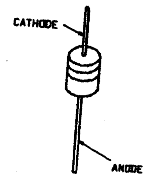
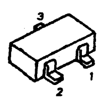
1SS133T
1SS148
RD5.1ES-B2
RD13ES-B2
RD15ES-B3
RD8.2ES-B3


CATHODE
ANODE

1SS123



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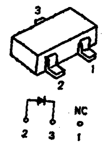
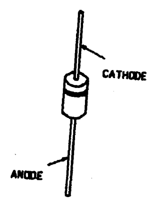
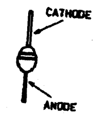


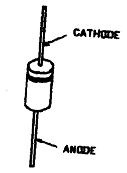
EQB01-33
RU-1


CATHODE
ANODE

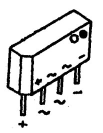
ERC26-15S
GH3F
V11N
V19G


CATHODE
ANODE

ERD28-08S
GP08DPKG23
RD5.1ES-B2
RD6.8ES-B3


CATHODE
ANODE

S1VB20



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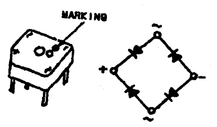
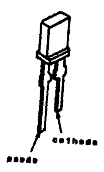


GL-9NG2


anode
cathode

SECTION 8
EXPLODED VIEWS

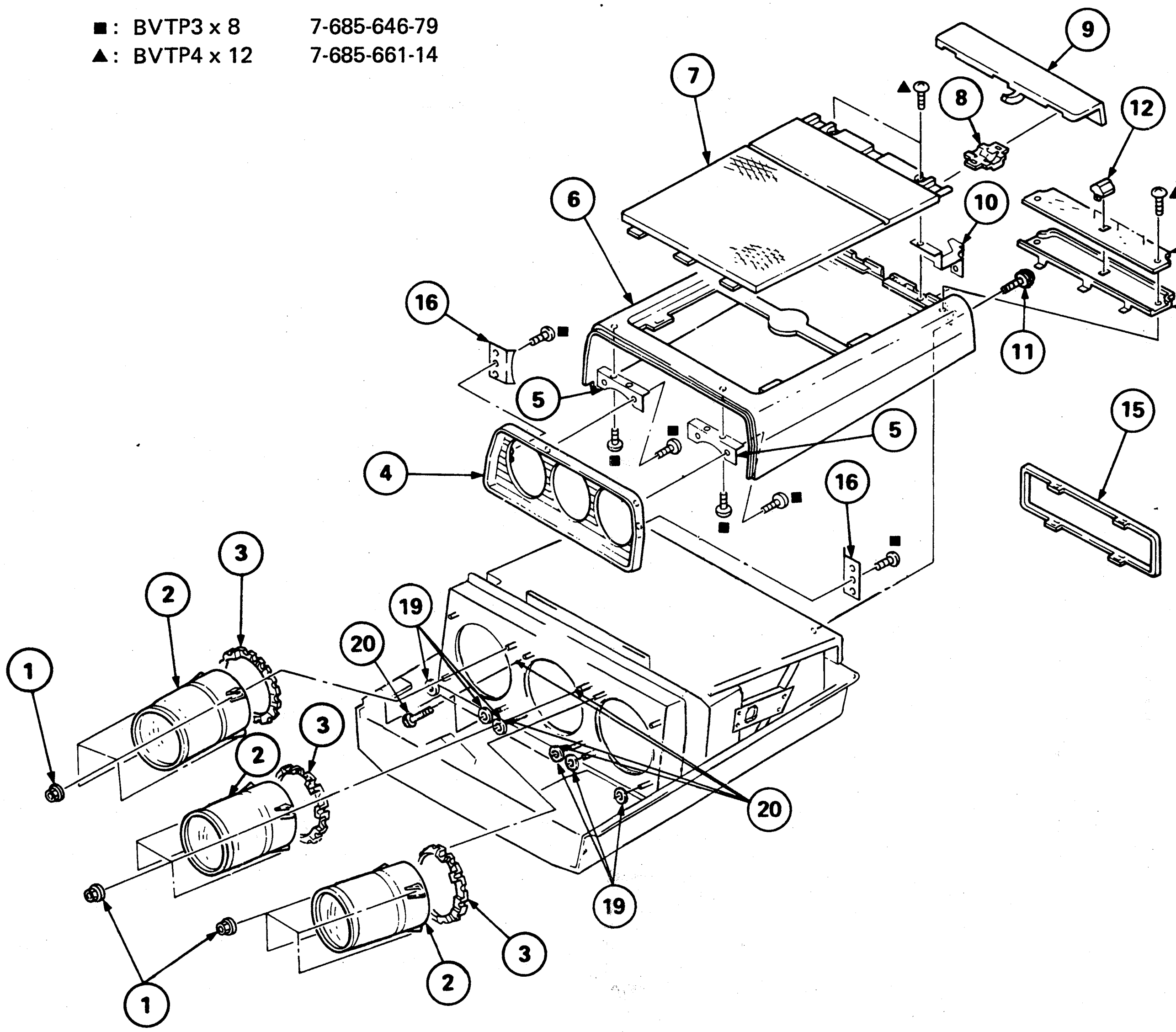
NOTE:
- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.

- Items marked " ★ " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

8-1. LENS

■: BVTP3 x 8 7-685-646-79
▲: BVTP4 x 12 7-685-661-14

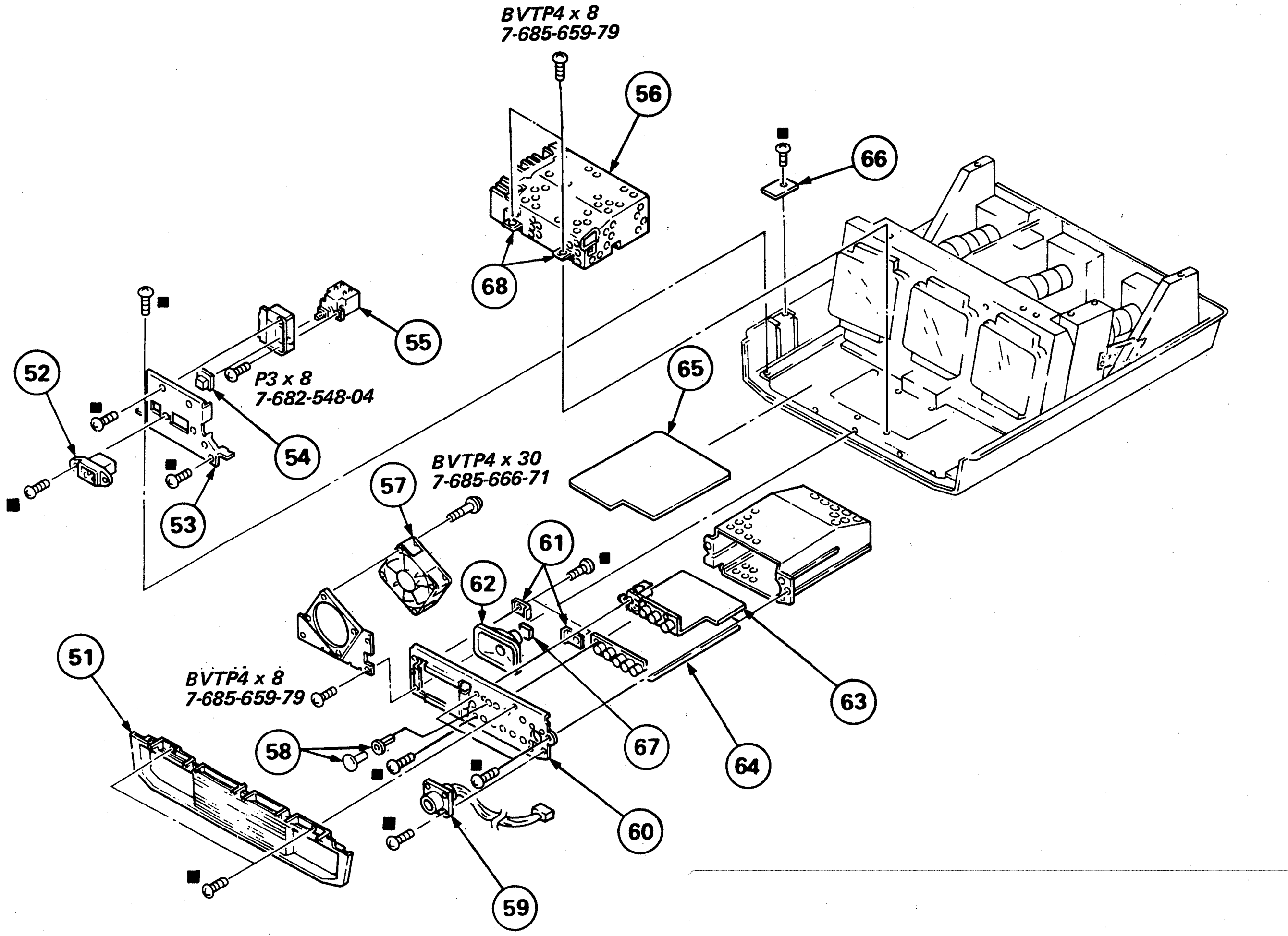


No.	Part No.	Description	Remark
1	4-304-749-00	NUT, FLANGE	
2	4-383-018-02	LENS (DELTA) (TAC-3)(VPH-1041QM ONLY)	
	4-383-089-01	LENS, DELTA HD6 (VPH-1042QM ONLY)	
3	*4-378-642-01	WASHER, LENS	
4	4-383-064-01	PANEL, LENS	
5	*4-383-021-01	BRACKET, LENS PANEL	
6	4-378-655-01	CABINET	
7	X-4378-625-1	BOARD ASSY, TOP	
8	3-659-618-00	HINGE, SPRING	
9	X-4378-603-1	DOOR ASSY	
10	*4-378-670-01	BRACKET, MESH EARTH	

No.	Part No.	Description	Remark
11	3-703-251-00	SCREW (+M4), IT TAPPING	
12	4-378-613-01	CAP, LAMP	
13	4-383-050-01	PLATE, ORNAMENTAL, CONTROL	
14	4-383-056-01	PANEL, CONTROL	
15	4-383-053-01	PANEL, REAR	
16	*4-383-038-01	BRACKET (B), LENS PANEL	
19	3-639-647-00	WASHER	
20	4-383-072-01	SCREW (4X45) (G), TAPPING, + BV	

8-2. PANEL

■: BVTP3 x 8 7-685-646-79



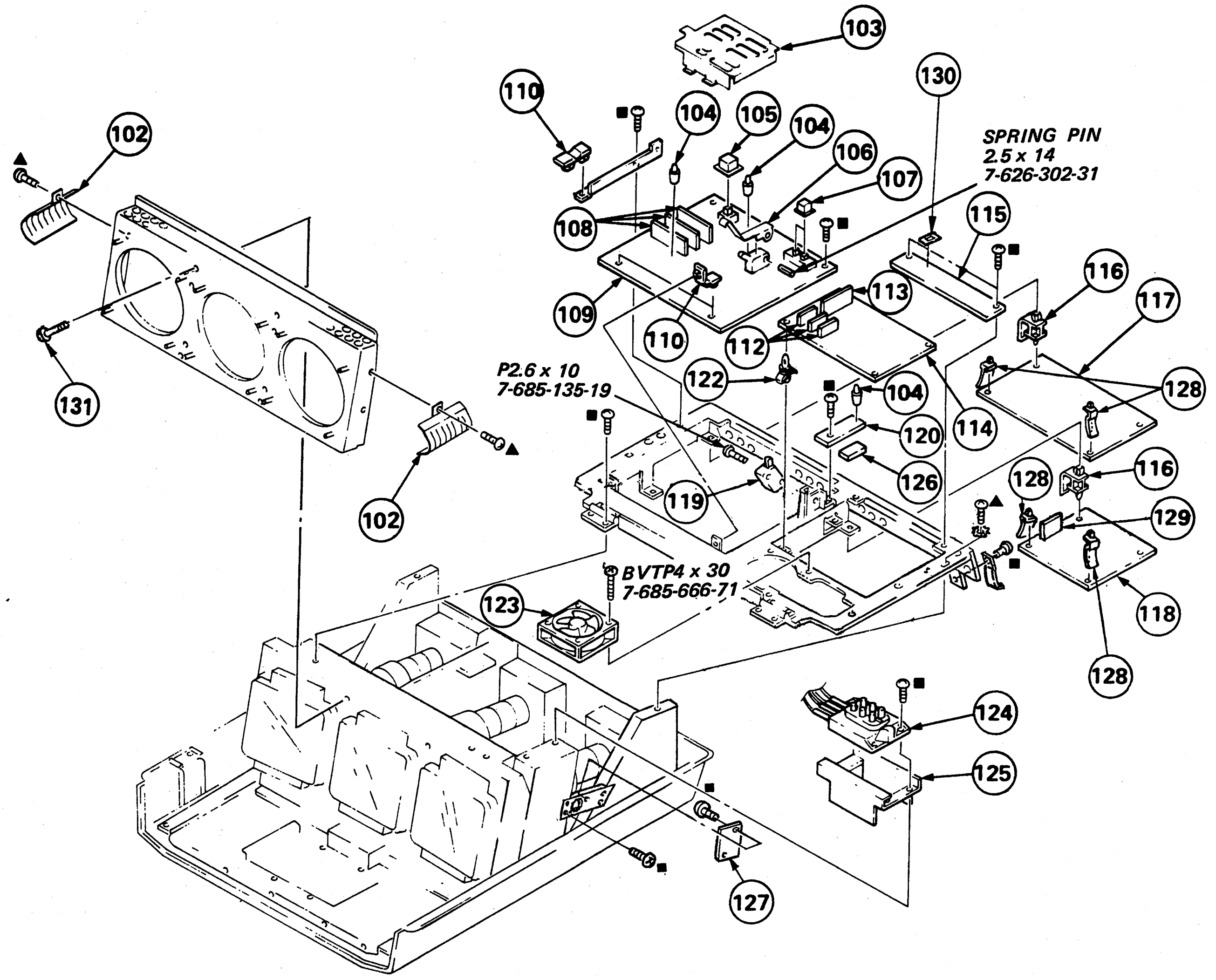
No.	Part No.	Description	Remark
51	4-383-063-01	PANEL, CONNECTOR	
52	⚠1-509-547-11	3P INLET	
53	4-383-049-01	PANEL (F), CONNECTOR	
54	4-362-811-00	BUTTON, MAIN POWER	
55	⚠1-570-052-12	SWITCH, PUSH (AC POWER)(1 KEY)	
56	⚠1-413-289-11	REGULATOR, SWITCHING (TK-15)	
57	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
58	4-374-303-01	RIVET, NYLON	
59	1-559-088-21	CONNECTOR ASSY, ROUND TYPE 14P	

No.	Part No.	Description	Remark
60	*4-387-729-01	CHASSIS (R), FRONT	
61	4-383-026-01	SPRING	
62	1-503-255-00	SPEAKER	
63	*A-1270-238-A	QB BOARD, COMPLETE	
64	*A-1270-237-A	QA BOARD, COMPLETE	
65	*1-621-056-11	FA BOARD	
66	*1-621-058-11	FC BOARD	
67	4-383-088-01	CUSHION, RUBBER	
68	*2-277-426-01	CLAMP	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

8-3. D BOARD

▲: BVTP4 x 8 7-685-659-79
■: BVTP3 x 8 7-685-646-79

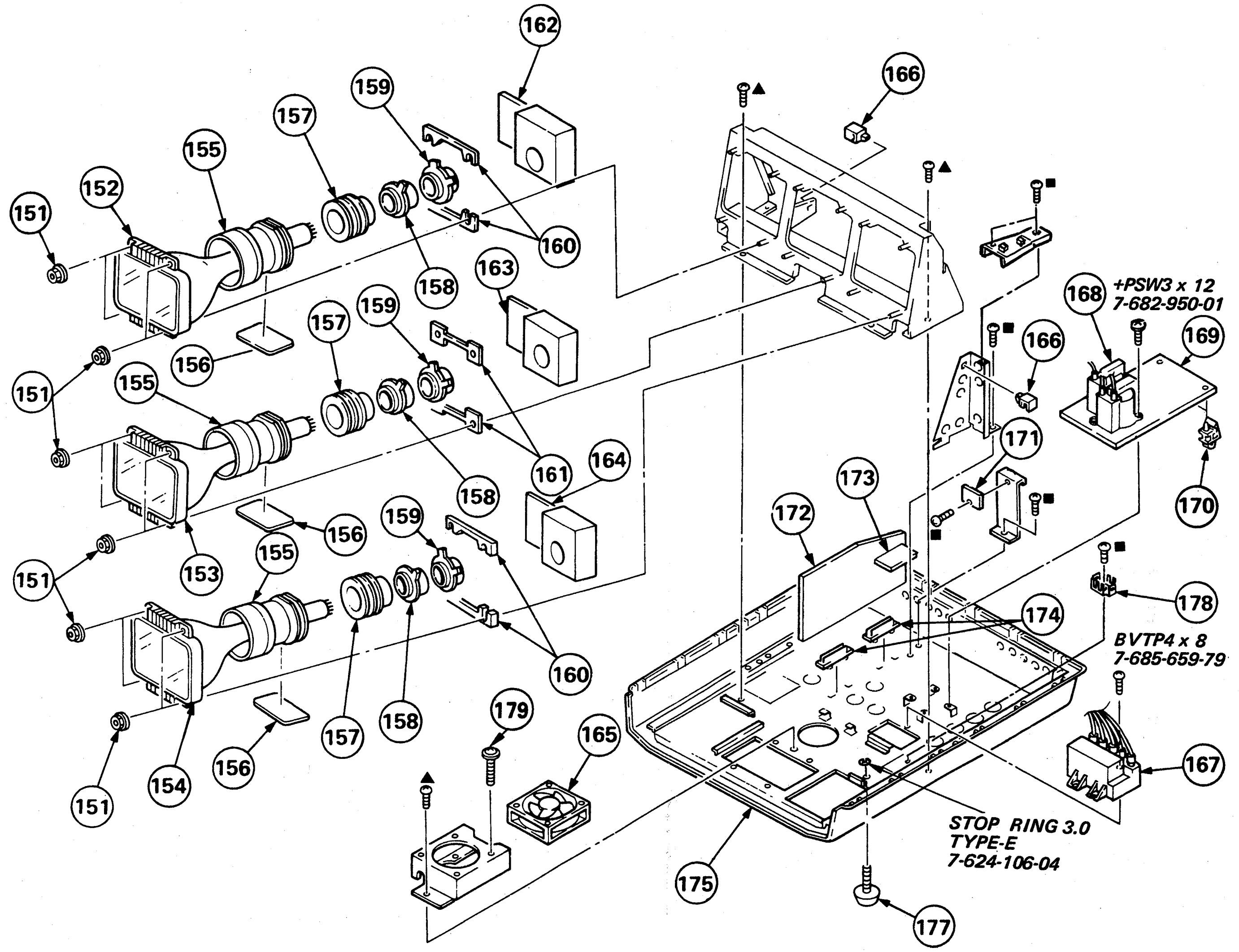

103
110
104
105
104
106
107
130
SPRING PIN
2.5 x 14
7-626-302-31
102
108
115
116
117
109
110
113
112
122
P2.6 x 10
7-685-135-19
104
128
120
114
126
131
119
128
116
129
102
BVTP4 x 30
7-685-666-71
123
118
128
124
125
127

No.	Part No.	Description	Remark
102	*4-378-671-01	SPRING	
103	*4-383-047-01	COVER, REGISTRATION ADJUSTMENT	
104	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
105	4-362-808-00	BUTTON, POWER	
106	*4-378-608-01	ACTUATOR	
107	4-362-809-00	BUTTON, SELECT	
108	*1-621-059-11	DB BOARD	
109	*A-1340-919-A	D BOARD, COMPLETE	108
110	*4-313-732-00	CLIP, HINGE, CIRCUIT BOARD	
112	*1-621-060-11	EC BOARD	
113	*1-621-055-11	EB BOARD	
114	*A-1340-922-A	E BOARD, COMPLETE	112,113
115	*1-621-062-11	HA BOARD	
116	*3-680-721-00	HOLDER, CHASSIS	
117	*A-1130-546-A	BB BOARD, COMPLETE	
118	*A-1135-520-A	BA BOARD, COMPLETE	129
119	⚠.1-552-437-11	SWITCH, LEVER	
120	*1-621-051-11	X BOARD	
122	*3-703-353-02	SUPPORT, PC BOARD	
123	⚠.1-541-449-11	FAN, DC (WITH SENSOR)	
124	⚠.1-237-582-11	RESISTOR ASSY, HIGH-VOLTAGE	
125	*4-383-037-01	COVER, FOCUS PACK	
126	9-911-840-XX	CUSHION	
127	*1-622-694-11	ED BOARD	
128	*3-703-141-00	HOLDER, PCB	
129	*A-1130-718-A	BC BOARD, COMPLETE	
130	*4-337-847-00	INSULATOR, SLIDE SWITCH	
131	4-383-072-01	SCREW (4X45) (G), TAPPING, +BV	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

8-4. BASE ASSY

▲: BVTP4 x 12 7-685-661-14
■: BVTP3 x 8 7-685-646-79


162
166
159
157
155
152
151
160
158
163
168
+PSW3 x 12
7-682-950-01
169
166
157
159
156
151
155
161
164
171
170
173
172
158
159
156
151
153
155
160
174
178
BVTP4 x 8
7-685-659-79
179
158
157
165
167
156
154
151
STOP RING 3.0
TYPE-E
7-624-106-04
175
177

No.	Part No.	Description	Remark
151	4-304-749-00	NUT, FLANGE	
152	⚠.8-733-023-05	PICTURE TUBE (SD-187 (R))	
153	⚠.8-733-021-05	PICTURE TUBE (SD-187 (G))	
154	⚠.8-733-022-05	PICTURE TUBE (SD-187 (B))	
155	⚠.1-451-243-12	DEFLECTION YOKE (SY-130A)	
156	*1-621-053-11	DY BOARD	
157	⚠.1-452-302-11	PICTURE TUBE NECK ASSEMBLY	
158	⚠.1-452-261-41	PICTURE TUBE NECK ASSY (362)	
159	⚠.1-452-261-32	PICTURE TUBE NECK ASSY (362)	
160	*4-378-603-01	SPACER (100"), PICTURE TUBE	
161	*4-383-025-01	SPACER (G), PICTURE TUBE	
162	*1-621-068-11	CR BOARD	
163	*1-621-069-11	CG BOARD	
164	*1-621-070-11	CB BOARD	
165	⚠.1-541-449-11	FAN, DC (WITH SENSOR)	
166	*3-701-903-00	HOLDER, PC BOARD	
167	⚠.1-453-108-11	DC BLOCK, HIGH-VOLTAGE	
168	⚠.1-439-408-11	TRANSFORMER ASSY, FLYBACK	
169	*1-621-050-11	PC BOARD	
170	*3-680-721-00	HOLDER, CHASSIS	
171	*1-621-052-11	Y BOARD	
172	*A-1190-113-A	PA BOARD, COMPLETE	173
173	*1-621-054-11	PB BOARD	
174	*3-680-613-01	SUPPORT, PC BOARD	
175	X-4378-628-1	BASE ASSY	
177	4-378-622-01	ADJUSTOR	
178	*4-309-624-00	TERMINAL, EARTH	
179	4-306-021-00	HEAD, WASHER, TAPPING SCREW	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

SECTION 9

ELECTRICAL PARTS LIST

NOTE:

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

RESISTORS
- All resistors are in ohms
- F : nonflammable

When indicating parts by reference number, please include the board name.

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

- The components identified by ⊠ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.
- The resistors of the reference number coded from 900 are used as jumper wires. Therefore, they are not mentioned on the schematic diagram.
- There are some cases the reference number on one board overlaps on the other board. Therefore, when ordering parts by the reference number, please include the board name.

BB

Ref.No.	Part No.	Description				Remark
	*A-1130-546-A	BB BOARD, COMPLETE ******************				
		CONNECTOR				
BB1	*1-566-058-11	PIN, CONNECTOR 6P				
BB2	*1-566-060-11	PIN, CONNECTOR 8P				
BB3	*1-566-056-11	PIN, CONNECTOR 4P				
BB4	*1-566-058-11	PIN, CONNECTOR 6P				
BB5	*1-566-059-11	PIN, CONNECTOR 7P				
BB6	*1-566-060-11	PIN, CONNECTOR 8P				
BB7	*1-566-057-11	PIN, CONNECTOR 5P				
BB8	*1-566-057-11	PIN, CONNECTOR 5P				
BB9	*1-566-057-11	PIN, CONNECTOR 5P				
		CAPACITOR				
C1	1-123-380-00	ELECT	1MF	20%	50V	
C2	1-123-356-00	ELECT	10MF	20%	16V	
C3	1-123-380-00	ELECT	1MF	20%	50V	
C5	1-123-333-00	ELECT	100MF	20%	16V	
C6	1-101-004-00	CERAMIC	0.01MF		50V	
C7	1-136-153-00	FILM	0.01MF	5%	50V	
C8	1-136-153-00	FILM	0.01MF	5%	50V	
C9	1-136-153-00	FILM	0.01MF	5%	50V	
C10	1-102-822-00	CERAMIC	390PF	5%	50V	
C11	1-102-822-00	CERAMIC	390PF	5%	50V	
C12	1-102-822-00	CERAMIC	390PF	5%	50V	
C13	1-123-356-00	ELECT	10MF	20%	16V	
C14	1-123-321-00	ELECT	220MF	20%	16V	
C15	1-101-006-00	CERAMIC	0.047MF		50V	
C16	1-123-379-00	ELECT	0.47MF	20%	50V	
C17	1-123-379-00	ELECT	0.47MF	20%	50V	
C18	1-102-824-00	CERAMIC	470PF	5%	50V	
C19	1-101-361-00	CERAMIC	150PF	5%	50V	
C20	1-101-361-00	CERAMIC	150PF	5%	50V	
C21	1-123-356-00	ELECT	10MF	20%	16V	
C22	1-101-361-00	CERAMIC	150PF	5%	50V	
C23	1-123-380-00	ELECT	1MF	20%	50V	
C24	1-123-380-00	ELECT	1MF	20%	50V	
C25	1-123-330-00	ELECT	22MF	20%	16V	
C26	1-123-380-00	ELECT	1MF	20%	50V	
C27	1-136-165-00	FILM	0.1MF	5%	50V	
C28	1-136-165-00	FILM	0.1MF	5%	50V	
C29	1-136-165-00	FILM	0.1MF	5%	50V	
C30	1-123-380-00	ELECT	1MF	20%	50V	
C31	1-136-163-00	FILM	0.068MF	5%	50V	
C32	1-124-464-11	ELECT	0.22MF	20%	50V	
C33	1-102-973-00	CERAMIC	100PF	5%	50V	
C34	1-123-379-00	ELECT	0.47MF	20%	50V	
C35	1-123-356-00	ELECT	10MF	20%	16V	
C36	1-101-810-00	CERAMIC	100PF	5%	500V	
C37	1-102-973-00	CERAMIC	100PF	5%	50V	

Ref.No.	Part No.	Description				Remark
C38	1-101-888-00	CERAMIC	68PF	5%	50V	
C39	1-102-973-00	CERAMIC	100PF	5%	50V	
C40	1-123-333-00	ELECT	100MF	20%	16V	
C41	1-136-153-00	FILM	0.01MF	5%	50V	
C42	1-123-356-00	ELECT	10MF	20%	16V	
C43	1-101-880-00	CERAMIC	47PF	5%	50V	
C44	1-123-380-00	ELECT	1MF	20%	50V	
C45	1-123-356-00	ELECT	10MF	20%	16V	
C46	1-123-356-00	ELECT	10MF	20%	16V	
C47	1-123-356-00	ELECT	10MF	20%	16V	
C48	1-123-356-00	ELECT	10MF	20%	16V	
C49	1-123-332-00	ELECT	47MF	20%	16V	
C50	1-101-006-00	CERAMIC	0.047MF		50V	
C51	1-101-006-00	CERAMIC	0.047MF		50V	
C52	1-101-006-00	CERAMIC	0.047MF		50V	
C53	1-101-006-00	CERAMIC	0.047MF		50V	
C54	1-101-006-00	CERAMIC	0.047MF		50V	
C55	1-101-006-00	CERAMIC	0.047MF		50V	
C56	1-101-006-00	CERAMIC	0.047MF		50V	
C57	1-101-006-00	CERAMIC	0.047MF		50V	
		DIODE				
D1	8-719-911-19	DIODE 1SS119				
D2	8-719-911-19	DIODE 1SS119				
D3	8-719-911-19	DIODE 1SS119				
D4	8-719-911-19	DIODE 1SS119				
D5	8-719-911-19	DIODE 1SS119				
D6	8-719-911-19	DIODE 1SS119				
D7	8-719-911-19	DIODE 1SS119				
D8	8-719-911-19	DIODE 1SS119				
D9	8-719-911-19	DIODE 1SS119				
D10	8-719-110-36	DIODE RD13ES-B2				
D11	8-719-911-19	DIODE 1SS119				
D12	8-719-911-19	DIODE 1SS119				
D13	8-719-911-19	DIODE 1SS119				
D14	8-719-911-19	DIODE 1SS119				
D15	8-719-911-19	DIODE 1SS119				
D16	8-719-911-19	DIODE 1SS119				
D17	8-719-911-19	DIODE 1SS119				
D18	8-719-911-19	DIODE 1SS119				
D19	8-719-911-19	DIODE 1SS119				
D20	8-719-911-19	DIODE 1SS119				
		IC				
IC1	⚠8-759-170-12	IC UPC78M12H				
IC2	8-759-700-69	IC NJM79L12A				
IC3	8-759-340-52	IC HD14052BP				
IC4	8-759-340-52	IC HD14052BP				
IC5	8-752-033-27	IC CXA1044AP				
IC6	8-759-240-69	IC TC4069UBP				
IC7	8-759-240-71	IC TC4071BP				
IC8	8-759-145-58	IC UPC4558C				

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

BB

Ref.No.	Part No.	Description				Remark
IC9	8-759-145-58	IC UPC4558C				
IC10	8-759-145-58	IC UPC4558C				
IC11	8-759-340-46	IC HD14046BP				
IC12	8-759-240-24	IC TC4024BP				
IC13	8-759-340-46	IC HD14046BP				
IC14	8-759-240-40	IC TC4040BP				
IC15	8-759-240-81	IC TC4081BP				
IC16	8-759-240-82	IC TC4082BP				
IC17	8-759-205-76	IC TC504013BP				
IC18	8-759-205-76	IC TC504013BP				
		COIL				
L1	1-410-494-11	INDUCTOR	1MMH			
L2	1-410-482-41	INDUCTOR	100UH			
		TRANSISTOR				
Q1	8-729-178-54	TRANSISTOR 2SC2785				
Q2	8-729-117-54	TRANSISTOR 2SA1175				
Q3	8-729-178-54	TRANSISTOR 2SC2785				
Q4	8-729-900-89	TRANSISTOR DTC144ES				
Q5	8-729-117-54	TRANSISTOR 2SA1175				
Q6	8-729-178-54	TRANSISTOR 2SC2785				
Q7	8-729-900-89	TRANSISTOR DTC144ES				
Q8	8-729-117-54	TRANSISTOR 2SA1175				
Q9	8-729-178-54	TRANSISTOR 2SC2785				
Q10	8-729-900-89	TRANSISTOR DTC144ES				
Q11	8-729-213-12	TRANSISTOR 2SC2230A				
Q12	8-729-117-54	TRANSISTOR 2SA1175				
Q13	8-729-117-54	TRANSISTOR 2SA1175				
Q14	8-729-117-54	TRANSISTOR 2SA1175				
Q15	8-729-117-54	TRANSISTOR 2SA1175				
Q16	8-729-178-54	TRANSISTOR 2SC2785				
Q17	8-729-178-54	TRANSISTOR 2SC2785				
Q18	8-729-178-54	TRANSISTOR 2SC2785				
Q19	8-729-178-54	TRANSISTOR 2SC2785				
Q20	8-729-178-54	TRANSISTOR 2SC2785				
Q21	8-729-178-54	TRANSISTOR 2SC2785				
Q22	8-729-178-54	TRANSISTOR 2SC2785				
Q23	8-729-178-54	TRANSISTOR 2SC2785				
Q24	8-729-178-54	TRANSISTOR 2SC2785				
Q25	8-729-178-54	TRANSISTOR 2SC2785				
Q26	8-729-178-54	TRANSISTOR 2SC2785				
Q27	8-729-178-54	TRANSISTOR 2SC2785				
Q28	8-729-178-54	TRANSISTOR 2SC2785				
Q29	8-729-178-54	TRANSISTOR 2SC2785				
Q30	8-729-178-54	TRANSISTOR 2SC2785				
Q31	8-729-178-54	TRANSISTOR 2SC2785				
Q32	8-729-178-54	TRANSISTOR 2SC2785				
Q33	8-729-178-54	TRANSISTOR 2SC2785				
Q34	8-729-117-54	TRANSISTOR 2SA1175				
Q35	8-729-178-54	TRANSISTOR 2SC2785				
Q36	8-729-178-54	TRANSISTOR 2SC2785				
Q37	⚠8-729-117-54	TRANSISTOR 2SA1175				
Q38	8-729-178-54	TRANSISTOR 2SC2785				
Q39	8-729-178-54	TRANSISTOR 2SC2785				
Q40	8-729-178-54	TRANSISTOR 2SC2785				
Q41	8-729-900-89	TRANSISTOR DTC144ES				
		RESISTOR				
R1	1-247-700-11	CARBON	100	5%	1/4W	
R2	1-247-700-11	CARBON	100	5%	1/4W	
R3	1-247-700-11	CARBON	100	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R4	1-249-405-11	CARBON	100	5%	1/4W	
R5	1-249-405-11	CARBON	100	5%	1/4W	
R6	1-249-405-11	CARBON	100	5%	1/4W	
R7	1-249-420-11	CARBON	1.8K	5%	1/4W	
R8	1-249-417-11	CARBON	1K	5%	1/4W	
R9	1-249-420-11	CARBON	1.8K	5%	1/4W	
R10	1-249-417-11	CARBON	1K	5%	1/4W	
R11	1-249-425-11	CARBON	4.7K	5%	1/4W	
R12	1-249-421-11	CARBON	2.2K	5%	1/4W	
R13	1-247-724-11	CARBON	8.2K	5%	1/4W	
R14	1-249-433-11	CARBON	22K	5%	1/4W	
R15	1-249-433-11	CARBON	22K	5%	1/4W	
R16	1-249-421-11	CARBON	2.2K	5%	1/4W	
R17	1-249-417-11	CARBON	1K	5%	1/4W	
R18	1-249-414-11	CARBON	560	5%	1/4W	
R19	1-249-405-11	CARBON	100	5%	1/4W	
R20	1-249-405-11	CARBON	100	5%	1/4W	
R21	1-249-405-11	CARBON	100	5%	1/4W	
R22	1-249-408-11	CARBON	180	5%	1/4W	
R23	1-249-408-11	CARBON	180	5%	1/4W	
R24	1-249-408-11	CARBON	180	5%	1/4W	
R25	1-215-425-00	METAL	1.5K	1%	1/6W	
R26	1-215-413-00	METAL	470	1%	1/6W	
R27	1-249-405-11	CARBON	100	5%	1/4W	
R28	1-249-401-11	CARBON	47	5%	1/4W	
R29	1-249-415-11	CARBON	680	5%	1/4W	
R30	1-249-410-11	CARBON	270	5%	1/4W	
R32	1-215-425-00	METAL	1.5K	1%	1/6W	
R33	1-215-413-00	METAL	470	1%	1/6W	
R34	1-249-405-11	CARBON	100	5%	1/4W	
R35	1-247-696-11	CARBON	47	5%	1/4W	
R36	1-249-415-11	CARBON	680	5%	1/4W	
R37	1-249-410-11	CARBON	270	5%	1/4W	
R39	1-215-425-00	METAL	1.5K	1%	1/6W	
R40	1-215-413-00	METAL	470	1%	1/6W	
R41	1-249-405-11	CARBON	100	5%	1/4W	
R42	1-249-401-11	CARBON	47	5%	1/4W	
R43	1-249-410-11	CARBON	270	5%	1/4W	
R45	1-249-409-11	CARBON	220	5%	1/4W	
R46	1-249-393-11	CARBON	10	5%	1/4W	
R47	1-249-422-11	CARBON	2.7K	5%	1/4W	
R48	1-247-818-11	CARBON	300	5%	1/4W	
R49	1-249-405-11	CARBON	100	5%	1/4W	
R50	1-247-700-11	CARBON	100	5%	1/4W	
R51	1-249-405-11	CARBON	100	5%	1/4W	
R52	1-247-700-11	CARBON	100	5%	1/4W	
R53	1-249-422-11	CARBON	2.7K	5%	1/4W	
R54	1-249-417-11	CARBON	1K	5%	1/4W	
R55	1-249-425-11	CARBON	4.7K	5%	1/4W	
R56	1-247-881-00	CARBON	120K	5%	1/4W	
R57	1-249-431-11	CARBON	15K	5%	1/4W	
R58	1-247-719-11	CARBON	3.3K	5%	1/4W	
R59	1-249-441-11	CARBON	100K	5%	1/4W	
R60	1-247-887-00	CARBON	220K	5%	1/4W	
R61	1-249-436-11	CARBON	39K	5%	1/4W	
R62	1-249-469-11	CARBON	100K	5%	1/4W	
R63	1-249-417-11	CARBON	1K	5%	1/4W	
R64	1-249-430-11	CARBON	12K	5%	1/4W	
R65	1-247-717-11	CARBON	2.2K	5%	1/4W	
R66	1-249-417-11	CARBON	1K	5%	1/4W	
R67	1-249-437-11	CARBON	47K	5%	1/4W	
R68	1-249-437-11	CARBON	47K	5%	1/4W	
R69	1-249-434-11	CARBON	27K	5%	1/4W	
R70	1-247-891-00	CARBON	330K	5%	1/4W	
R71	1-249-429-11	CARBON	10K	5%	1/4W	

BB **BA**

Ref.No.	Part No.	Description				Remark
R72	1-249-438-11	CARBON	56K	5%	1/4W	
R73	1-249-434-11	CARBON	27K	5%	1/4W	
R74	1-249-441-11	CARBON	100K	5%	1/4W	
R75	1-249-441-11	CARBON	100K	5%	1/4W	
R76	1-249-429-11	CARBON	10K	5%	1/4W	
R77	1-249-439-11	CARBON	68K	5%	1/4W	
R78	1-247-891-00	CARBON	330K	5%	1/4W	
R79	1-249-423-11	CARBON	3.3K	5%	1/4W	
R80	1-247-881-00	CARBON	120K	5%	1/4W	
R81	1-249-429-11	CARBON	10K	5%	1/4W	
R82	1-249-429-11	CARBON	10K	5%	1/4W	
R83	1-214-769-00	METAL	47K	1%	1/4W	
R84	1-215-469-00	METAL	100K	1%	1/6W	
R85	1-215-457-00	METAL	33K	1%	1/6W	
R86	1-215-469-00	METAL	100K	1%	1/6W	
R87	1-249-429-11	CARBON	10K	5%	1/4W	
R88	1-215-443-00	METAL	8.2K	1%	1/6W	
R89	1-215-443-00	METAL	8.2K	1%	1/6W	
R90	1-215-443-00	METAL	8.2K	1%	1/6W	
R91	1-247-887-00	CARBON	220K	5%	1/4W	
R92	1-247-887-00	CARBON	220K	5%	1/4W	
R93	1-247-887-00	CARBON	220K	5%	1/4W	
R94	1-249-441-11	CARBON	100K	5%	1/4W	
R95	1-249-469-11	CARBON	100K	5%	1/4W	
R96	1-249-429-11	CARBON	10K	5%	1/4W	
R97	1-247-889-00	CARBON	270K	5%	1/4W	
R98	1-249-429-11	CARBON	10K	5%	1/4W	
R99	1-215-431-00	METAL	2.7K	1%	1/6W	
R100	1-249-432-11	CARBON	18K	5%	1/4W	
R101	1-215-445-00	METAL	10K	1%	1/6W	
R102	1-215-439-00	METAL	5.6K	1%	1/6W	
R103	1-215-449-00	METAL	15K	1%	1/6W	
R104	1-249-423-11	CARBON	3.3K	5%	1/4W	
R105	1-247-700-11	CARBON	100	5%	1/4W	
R106	1-249-405-11	CARBON	100	5%	1/4W	
R107	1-215-461-00	METAL	47K	1%	1/6W	
R108	1-214-777-00	METAL	100K	1%	1/4W	
R109	1-215-461-00	METAL	47K	1%	1/6W	
R110	1-215-469-00	METAL	100K	1%	1/6W	
R111	1-215-461-00	METAL	47K	1%	1/6W	
R112	1-215-469-00	METAL	100K	1%	1/6W	
R113	1-249-439-11	CARBON	68K	5%	1/4W	
R114	1-249-439-11	CARBON	68K	5%	1/4W	
R115	1-249-437-11	CARBON	47K	5%	1/4W	
R116	1-215-429-00	METAL	2.2K	1%	1/6W	
R117	1-249-423-11	CARBON	3.3K	5%	1/4W	
R118	1-249-417-11	CARBON	1K	5%	1/4W	
R119	1-249-417-11	CARBON	1K	5%	1/4W	
R120	1-247-726-11	CARBON	33K	5%	1/4W	
R121	1-249-441-11	CARBON	100K	5%	1/4W	
R122	1-249-427-11	CARBON	6.8K	5%	1/4W	
R123	1-249-431-11	CARBON	15K	5%	1/4W	
R124	1-249-415-11	CARBON	680	5%	1/4W	
R125	1-249-441-11	CARBON	100K	5%	1/4W	
R126	1-249-429-11	CARBON	10K	5%	1/4W	
R127	1-249-417-11	CARBON	1K	5%	1/4W	
R128	1-249-421-11	CARBON	2.2K	5%	1/4W	
R129	1-249-421-11	CARBON	2.2K	5%	1/4W	
R130	1-249-421-11	CARBON	2.2K	5%	1/4W	
R131	1-249-421-11	CARBON	2.2K	5%	1/4W	
R132	1-249-421-11	CARBON	2.2K	5%	1/4W	
R133	1-249-425-11	CARBON	4.7K	5%	1/4W	
R134	1-249-425-11	CARBON	4.7K	5%	1/4W	
R135	1-249-425-11	CARBON	4.7K	5%	1/4W	
R136	1-249-423-11	CARBON	3.3K	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R137	1-249-430-11	CARBON	12K	5%	1/4W	
R138	1-249-434-11	CARBON	27K	5%	1/4W	
R139	1-247-713-11	CARBON	1K	5%	1/4W	
R140	1-249-421-11	CARBON	2.2K	5%	1/4W	
R141	1-249-421-11	CARBON	2.2K	5%	1/4W	
R142	1-247-706-11	CARBON	330	5%	1/4W	
R143	1-249-429-11	CARBON	10K	5%	1/4W	
R144	1-249-437-11	CARBON	47K	5%	1/4W	
R145	1-249-417-11	CARBON	1K	5%	1/4W	
R146	1-249-417-11	CARBON	1K	5%	1/4W	
R147	1-249-405-11	CARBON	100	5%	1/4W	
R148	1-249-431-11	CARBON	15K	5%	1/4W	
R149	1-249-429-11	CARBON	10K	5%	1/4W	
R150	1-249-425-11	CARBON	4.7K	5%	1/4W	
R151	1-249-428-11	CARBON	8.2K	5%	1/4W	
R153	1-249-429-11	CARBON	10K	5%	1/4W	
R154	1-247-885-00	CARBON	180K	5%	1/4W	
R155	1-249-437-11	CARBON	47K	5%	1/4W	
R156	1-249-435-11	CARBON	33K	5%	1/4W	
R157	1-249-433-11	CARBON	22K	5%	1/4W	
R158	1-249-435-11	CARBON	33K	5%	1/4W	
R159	1-249-399-11	CARBON	33	5%	1/4W	
R160	1-249-399-11	CARBON	33	5%	1/4W	
R161	1-249-399-11	CARBON	33	5%	1/4W	
R164	1-249-425-11	CARBON	4.7K	5%	1/4W	

VARIABLE RESISTOR

RV1	1-230-504-11	RES, ADJ, CARBON 220
RV2	1-230-504-11	RES, ADJ, CARBON 220
RV3	1-230-504-11	RES, ADJ, CARBON 220
RV4	1-228-997-00	RES, ADJ, CARBON 100K

SWITCH

S1	1-553-716-00	SWITCH, SLIDE

****

*A-1135-520-A BA BOARD, COMPLETE
****

4-027-606-01 HEAT SINK (TO-220 TYPE)

CONNECTOR

BA1	*1-566-056-11	PIN, CONNECTOR 4P
BA2	*1-566-056-11	PIN, CONNECTOR 4P
BA3	*1-566-057-11	PIN, CONNECTOR 5P
BA4	*1-566-060-11	PIN, CONNECTOR 8P
BA5	*1-566-059-11	PIN, CONNECTOR 7P
BA6	*1-566-058-11	PIN, CONNECTOR 6P

CAPACITOR

C108	1-123-356-00	ELECT	10MF	20%	16V
C115	1-123-356-00	ELECT	10MF	20%	16V
C119	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C120	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C121	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C122	1-163-090-00	CERAMIC CHIP	7PF	0.25PF	50V
C123	1-123-380-00	ELECT	1MF	20%	50V
C124	1-123-356-00	ELECT	10MF	20%	16V
C127	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C128	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C129	1-123-379-00	ELECT	0.47MF	20%	50V

BA

Ref.No.	Part No.	Description		Remark
C130	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C131	1-136-165-00	FILM 0.1MF	5%	50V
C132	1-136-165-00	FILM 0.1MF	5%	50V
C133	1-124-631-11	ELECT 47MF	20%	16V
C134	1-163-090-00	CERAMIC CHIP 7PF	0.25PF	50V
C135	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C136	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C137	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C138	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C139	1-136-153-00	FILM 0.01MF	5%	50V
C140	1-135-088-21	TANTAL. CHIP 2.2MF	10%	20V
C141	1-136-165-00	FILM 0.1MF	5%	50V
C142	1-136-165-00	FILM 0.1MF	5%	50V
C143	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C144	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C145	1-163-083-00	CERAMIC CHIP 1PF	0.25PF	50V
C146	1-163-105-00	CERAMIC CHIP 33PF	5%	50V
C147	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C148	1-123-356-00	ELECT 10MF	20%	16V
C149	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C150	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C151	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C152	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C153	1-136-157-00	FILM 0.022MF	5%	50V
C155	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C156	1-123-356-00	ELECT 10MF	20%	16V
C157	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C160	1-163-135-00	CERAMIC CHIP 560PF	10%	50V
C161	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C162	1-163-185-00	CERAMIC CHIP 150PF	5%	50V
C163	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C164	1-126-151-11	ELECT 4.7MF	20%	16V
C165	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C166	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C167	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C169	1-136-165-00	FILM 0.1MF	5%	50V
C170	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C172	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C173	1-136-165-00	FILM 0.1MF	5%	50V
C175	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C176	1-163-097-00	CERAMIC CHIP 15PF	5%	50V
C177	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C179	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C180	1-126-101-11	ELECT 100MF	20%	16V
C183	1-135-145-11	TANTAL. CHIP 0.47MF	10%	25V
C186	1-124-360-00	ELECT 1000MF	20%	16V
C188	1-123-356-00	ELECT 10MF	20%	16V
C189	1-123-356-00	ELECT 10MF	20%	16V
C195	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C200	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C201	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C202	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C203	1-126-151-11	ELECT 4.7MF	20%	16V
C204	1-135-088-21	TANTAL. CHIP 2.2MF	10%	20V
C205	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C206	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C207	1-163-379-11	CERAMIC CHIP 120PF	5%	50V
C208	1-163-109-00	CERAMIC CHIP 47PF	5%	50V
C209	1-163-183-00	CERAMIC CHIP 120PF	5%	50V
C210	1-163-121-00	CERAMIC CHIP 150PF	5%	50V
C211	1-136-153-00	FILM 0.01MF	5%	50V
C212	1-123-356-00	ELECT 10MF	20%	16V
C213	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C214	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C215	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C216	1-163-133-00	CERAMIC CHIP 470PF	5%	50V
C217	1-123-356-00	ELECT 10MF	20%	16V
C236	1-123-356-00	ELECT 10MF	20%	16V
C237	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C238	1-123-332-00	ELECT 47MF	20%	16V
C244	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C245	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C247	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C248	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C401	1-124-499-11	ELECT 1MF	20%	50V
C402	1-123-356-00	ELECT 10MF	20%	16V
C403	1-124-480-11	ELECT 470MF	20%	25V
C404	1-123-356-00	ELECT 10MF	20%	16V
C405	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C406	1-123-356-00	ELECT 10MF	20%	16V
C407	1-163-095-00	CERAMIC CHIP 12PF	5%	50V
C408	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C409	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C410	1-163-035-00	CERAMIC CHIP 0.047MF		50V
C411	1-123-332-00	ELECT 47MF	20%	16V
C412	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C413	1-123-332-00	ELECT 47MF	20%	16V
C414	1-123-356-00	ELECT 10MF	20%	16V
C415	1-163-107-00	CERAMIC CHIP 39PF	5%	50V
C416	1-163-111-00	CERAMIC CHIP 56PF	5%	50V
C417	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C418	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C419	1-126-101-11	ELECT 100MF	20%	16V
C420	1-163-113-00	CERAMIC CHIP 68PF	5%	50V
C421	1-163-115-00	CERAMIC CHIP 82PF	5%	50V
C422	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C423	1-135-091-00	TANTAL. CHIP 1MF	10%	16V
C424	1-136-160-00	FILM 0.039MF	5%	50V
C425	1-136-159-00	FILM 0.033MF	5%	50V
C426	1-123-356-00	ELECT 10MF	20%	16V
C427	1-163-021-00	CERAMIC CHIP 0.01MF		50V
C428	1-163-090-00	CERAMIC CHIP 7PF	0.25PF	50V
C429	1-126-104-11	ELECT 470MF	20%	35V
C431	1-123-356-00	ELECT 10MF	20%	16V
C432	1-163-101-00	CERAMIC CHIP 22PF	5%	50V
C433	1-163-038-00	CERAMIC CHIP 0.1MF		25V
C434	1-163-117-00	CERAMIC CHIP 100PF	5%	50V

DIODE

Ref.No.	Part No.	Description
D101	8-719-100-03	DIODE 1S2835
D102	8-719-100-05	DIODE 1S2837
D103	8-719-100-03	DIODE 1S2835
D104	8-719-100-05	DIODE 1S2837
D105	8-719-100-03	DIODE 1S2835
D106	8-719-100-03	DIODE 1S2835
D107	8-719-100-05	DIODE 1S2837
D108	8-719-100-05	DIODE 1S2837
D110	8-719-101-23	DIODE 1SS123
D111	8-719-100-03	DIODE 1S2835
D113	8-719-100-03	DIODE 1S2835
D115	8-719-100-03	DIODE 1S2835
D116	8-719-101-23	DIODE 1SS123
D122	8-719-100-03	DIODE 1S2835
D125	8-719-100-03	DIODE 1S2835
D401	8-719-100-05	DIODE 1S2837
D402	8-719-100-03	DIODE 1S2835
D407	8-719-105-83	DIODE RD5.1M-B3
D408	8-719-100-03	DIODE 1S2835

DELAY LINE

Ref.No.	Part No.	Description	Remark
DL103	1-415-122-31	DELAY LINE, 1H (PAL)	
DL401	1-415-494-11	DELAY LINE, Y	
DL402	1-415-356-11	DELAY LINE, 1H	

IC

Ref.No.	Part No.	Description	Remark
IC101	8-752-006-10	IC CX20061	
IC102	8-752-006-10	IC CX20061	
IC103	8-759-113-65	IC UPC1365C	
IC104	8-759-240-24	IC TC4024BP	
IC201	8-759-100-15	IC UPC1364C	
IC401	8-759-170-12	IC UPC78M12H	
IC402	8-759-700-69	IC NJM79L12A	
IC403	8-759-014-96	IC MC1496P	
IC404	8-759-979-16	IC CX7916	
IC501	8-759-340-53	IC HD14053BP	

COIL

Ref.No.	Part No.	Description		Remark
L107	1-410-208-41	INDUCTOR CHIP	22UH	
L108	1-410-211-51	INDUCTOR CHIP	39UH	
L110	1-410-207-51	INDUCTOR CHIP	18UH	
L111	1-410-201-51	INDUCTOR CHIP	5.6UH	
L112	1-410-203-51	INDUCTOR CHIP	8.2UH	
L114	1-410-214-31	INDUCTOR CHIP	68UH	
L201	1-410-091-31	INDUCTOR	22MMH	
L202	1-410-068-11	INDUCTOR	5.6MMH	
L203	1-410-209-51	INDUCTOR CHIP	27UH	
L401	1-410-192-51	INDUCTOR CHIP	1UH	
L402	1-410-211-51	INDUCTOR CHIP	39UH	
L403	1-410-212-51	INDUCTOR CHIP	47UH	
L404	1-410-206-51	INDUCTOR CHIP	15UH	
L405	1-410-204-31	INDUCTOR CHIP	10UH	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q116	8-729-100-76	TRANSISTOR 2SA812	
Q117	8-729-901-03	TRANSISTOR DTC144WK	
Q118	8-729-901-03	TRANSISTOR DTC144WK	
Q120	8-729-901-03	TRANSISTOR DTC144WK	
Q121	8-729-100-76	TRANSISTOR 2SA812	
Q122	8-729-901-03	TRANSISTOR DTC144WK	
Q123	8-729-100-66	TRANSISTOR 2SC1623	
Q124	8-729-115-30	TRANSISTOR 2SK105A-30	
Q125	8-729-901-03	TRANSISTOR DTC144WK	
Q126	8-729-116-05	TRANSISTOR 2SK160-K5	
Q127	8-729-116-05	TRANSISTOR 2SK160-K5	
Q128	8-729-116-05	TRANSISTOR 2SK160-K5	
Q129	8-729-100-66	TRANSISTOR 2SC1623	
Q130	8-729-100-66	TRANSISTOR 2SC1623	
Q131	8-729-116-05	TRANSISTOR 2SK160-K5	
Q132	8-729-116-05	TRANSISTOR 2SK160-K5	
Q135	8-729-100-76	TRANSISTOR 2SA812	
Q136	8-729-100-76	TRANSISTOR 2SA812	
Q137	8-729-100-76	TRANSISTOR 2SA812	
Q138	8-729-100-76	TRANSISTOR 2SA812	
Q139	8-729-901-03	TRANSISTOR DTC144WK	
Q144	8-729-901-03	TRANSISTOR DTC144WK	
Q145	8-729-100-66	TRANSISTOR 2SC1623	
Q149	8-729-100-76	TRANSISTOR 2SA812	
Q150	8-729-100-76	TRANSISTOR 2SA812	
Q152	8-729-901-03	TRANSISTOR DTC144WK	
Q153	8-729-901-03	TRANSISTOR DTC144WK	
Q154	8-729-901-03	TRANSISTOR DTC144WK	
Q401	8-729-100-76	TRANSISTOR 2SA812	
Q402	8-729-100-66	TRANSISTOR 2SC1623	
Q403	8-729-100-66	TRANSISTOR 2SC1623	
Q404	8-729-100-76	TRANSISTOR 2SA812	
Q405	8-729-100-66	TRANSISTOR 2SC1623	
Q406	8-729-100-76	TRANSISTOR 2SA812	
Q407	8-729-100-66	TRANSISTOR 2SC1623	
Q408	8-729-100-76	TRANSISTOR 2SA812	
Q409	8-729-100-66	TRANSISTOR 2SC1623	
Q410	8-729-100-66	TRANSISTOR 2SC1623	
Q411	8-729-100-66	TRANSISTOR 2SC1623	
Q412	8-729-100-66	TRANSISTOR 2SC1623	
Q413	8-729-100-66	TRANSISTOR 2SC1623	
Q414	8-729-100-66	TRANSISTOR 2SC1623	
Q415	8-729-100-66	TRANSISTOR 2SC1623	
Q416	8-729-100-66	TRANSISTOR 2SC1623	
Q417	8-729-901-03	TRANSISTOR DTC144WK	
Q418	8-729-901-03	TRANSISTOR DTC144WK	
Q419	8-729-901-03	TRANSISTOR DTC144WK	
Q420	8-729-100-66	TRANSISTOR 2SC1623	
Q421	8-729-100-66	TRANSISTOR 2SC1623	
Q422	8-729-901-03	TRANSISTOR DTC144WK	
Q423	8-729-100-66	TRANSISTOR 2SC1623	
Q424	8-729-100-66	TRANSISTOR 2SC1623	
Q425	8-729-100-66	TRANSISTOR 2SC1623	
Q426	8-729-100-66	TRANSISTOR 2SC1623	
Q427	8-729-901-03	TRANSISTOR DTC144WK	
Q431	8-729-100-66	TRANSISTOR 2SC1623	
Q432	8-729-100-66	TRANSISTOR 2SC1623	
Q433	8-729-100-66	TRANSISTOR 2SC1623	
Q434	8-729-100-66	TRANSISTOR 2SC1623	
Q435	8-729-100-66	TRANSISTOR 2SC1623	
Q436	8-729-100-66	TRANSISTOR 2SC1623	
Q437	8-729-100-66	TRANSISTOR 2SC1623	
Q438	8-729-100-66	TRANSISTOR 2SC1623	
Q439	8-729-100-66	TRANSISTOR 2SC1623	
Q440	8-729-901-03	TRANSISTOR DTC144WK	
Q441	8-729-901-03	TRANSISTOR DTC144WK	
Q442	8-729-100-66	TRANSISTOR 2SC1623	
Q443	8-729-100-66	TRANSISTOR 2SC1623	

RESISTOR

Ref.No.	Part No.	Description				Remark
R056	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R066	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R140	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R141	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R150	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R151	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R152	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R153	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R156	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R157	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R159	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R160	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R165	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R167	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R168	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R173	1-216-214-00	METAL GLAZE	4.7K	5%	1/8W	
R176	1-216-105-00	METAL GLAZE	220K	5%	1/10W	
R177	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R178	1-216-101-00	METAL GLAZE	150K	5%	1/10W	
R180	1-216-049-00	METAL GLAZE	1K	5%	1/10W	

Ref.No.	Part No.	Description				Remark
R181	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R182	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R183	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R184	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R185	1-216-095-00	METAL GLAZE	82K	5%	1/10W	
R186	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R187	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R188	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R189	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R190	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R192	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R193	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R194	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R195	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R196	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R197	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R198	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R199	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R200	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R201	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R202	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R204	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R207	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R208	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R210	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R211	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R212	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R213	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R214	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R215	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R216	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R217	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R218	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R219	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R220	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R221	1-216-088-00	METAL GLAZE	43K	5%	1/10W	
R222	1-216-093-00	METAL GLAZE	68K	5%	1/10W	
R223	1-216-067-00	METAL GLAZE	5.6K	5%	1/10W	
R230	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R231	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R232	1-216-039-00	METAL GLAZE	390	5%	1/10W	
R233	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R234	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R235	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R236	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R237	1-216-033-00	METAL GLAZE	220	5%	1/10W	
R238	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R240	1-216-056-00	METAL GLAZE	2K	5%	1/10W	
R241	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R242	1-216-072-00	METAL GLAZE	9.1K	5%	1/10W	
R245	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R246	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R247	1-216-107-00	METAL GLAZE	270K	5%	1/10W	
R249	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R250	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R251	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R252	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R253	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R254	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R255	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R256	1-216-220-00	METAL GLAZE	8.2K	5%	1/8W	
R258	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R259	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R262	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R270	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R271	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R273	1-202-723-00	SOLID	2.2M	10%	1/2W	
R274	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R275	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R276	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R277	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R278	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R279	1-216-084-00	METAL GLAZE	30K	5%	1/10W	
R280	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R281	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R282	1-249-421-11	CARBON	2.2K	5%	1/8W	F
R283	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R284	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R285	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R286	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R287	1-216-121-00	METAL GLAZE	1M	5%	1/10W	
R288	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R290	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R291	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R296	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R307	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R308	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R311	1-216-090-00	METAL GLAZE	51K	5%	1/10W	
R313	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R315	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R316	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R317	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R318	1-216-031-00	METAL GLAZE	180	5%	1/10W	
R326	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R332	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R348	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R401	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R402	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R403	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R404	1-216-046-00	METAL GLAZE	750	5%	1/10W	
R405	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R406	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R407	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R408	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R409	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R410	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R411	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R412	1-216-037-00	METAL GLAZE	330	5%	1/10W	
R413	1-216-103-00	METAL GLAZE	180K	5%	1/10W	
R414	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R415	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R416	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R417	1-216-071-00	METAL GLAZE	8.2K	5%	1/10W	
R418	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R419	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R420	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R421	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R423	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R424	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R425	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R426	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R427	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R428	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R429	1-216-091-00	METAL GLAZE	56K	5%	1/10W	
R430	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R431	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R432	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R433	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R434	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R435	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	

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Ref.No.	Part No.	Description				Remark
R436	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R437	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R438	1-216-196-00	METAL GLAZE	820	5%	1/8W	
R439	1-216-049-00	METAL GLAZE	1K	5%	1/10W	
R440	1-216-234-00	METAL GLAZE	33K	5%	1/8W	
R441	1-216-232-00	METAL GLAZE	27K	5%	1/8W	
R442	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R443	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R444	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R445	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R446	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R447	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R448	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R449	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R450	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R451	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R452	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R453	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R454	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R455	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R456	1-216-045-00	METAL GLAZE	680	5%	1/10W	
R457	1-216-041-00	METAL GLAZE	470	5%	1/10W	
R458	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R459	1-216-640-11	METAL CHIP	360	0.50%	1/10W	
R461	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R462	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R463	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R464	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R465	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R466	1-247-725-11	CARBON	10K	5%	1/4W	
R467	1-216-079-00	METAL GLAZE	18K	5%	1/10W	
R468	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R469	1-216-075-00	METAL GLAZE	12K	5%	1/10W	
R470	1-216-051-00	METAL GLAZE	1.2K	5%	1/10W	
R471	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R472	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R473	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R479	1-216-083-00	METAL GLAZE	27K	5%	1/10W	
R480	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R481	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R482	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R483	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R484	1-216-174-00	METAL GLAZE	100	5%	1/8W	
R485	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R486	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R487	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R488	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R489	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R490	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R491	1-216-063-00	METAL GLAZE	3.9K	5%	1/10W	
R492	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R493	1-216-047-00	METAL GLAZE	820	5%	1/10W	
R494	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R495	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R498	1-216-222-00	METAL GLAZE	10K	5%	1/8W	
R499	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R500	1-216-200-00	METAL GLAZE	1.2K	5%	1/8W	
R501	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R502	1-216-081-00	METAL GLAZE	22K	5%	1/10W	
R503	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R504	1-216-085-00	METAL GLAZE	33K	5%	1/10W	
R505	1-216-097-00	METAL GLAZE	100K	5%	1/10W	
R506	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R667	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R668	1-216-073-00	METAL GLAZE	10K	5%	1/10W	

Ref.No.	Part No.	Description				Remark
R669	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R670	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R671	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R672	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R673	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R674	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R675	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R676	1-216-055-00	METAL GLAZE	1.8K	5%	1/10W	
R678	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R679	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R680	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R681	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R682	1-216-671-11	METAL CHIP	6.8K	0.50%	1/10W	
R683	1-216-687-11	METAL CHIP	33K	0.50%	1/10W	
R684	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R685	1-216-699-11	METAL CHIP	100K	0.50%	1/10W	
R686	1-216-059-00	METAL GLAZE	2.7K	5%	1/10W	
R687	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R688	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R689	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R690	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R691	1-216-017-00	METAL GLAZE	47	5%	1/10W	
R692	1-216-065-00	METAL GLAZE	4.7K	5%	1/10W	
R693	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R694	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R695	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R696	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R697	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R698	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R699	1-216-053-00	METAL GLAZE	1.5K	5%	1/10W	
R700	1-216-025-00	METAL GLAZE	100	5%	1/10W	
R702	1-216-073-00	METAL GLAZE	10K	5%	1/10W	
R703	1-216-061-00	METAL GLAZE	3.3K	5%	1/10W	
R704	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R705	1-216-089-00	METAL GLAZE	47K	5%	1/10W	
R706	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R707	1-216-077-00	METAL GLAZE	15K	5%	1/10W	
R708	1-216-057-00	METAL GLAZE	2.2K	5%	1/10W	
R900	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R901	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R902	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R903	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R904	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R905	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R906	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R907	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R908	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R909	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R910	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R911	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R912	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R913	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R914	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R915	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R916	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R917	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R918	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R919	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R920	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R921	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R922	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R923	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R924	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R925	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R926	1-216-295-00	METAL GLAZE	0	5%	1/10W	

BA **BC**

Ref.No.	Part No.	Description				Remark
R927	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R928	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R929	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R930	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R931	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R932	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R933	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R934	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R935	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R936	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R937	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R938	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R939	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R940	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R941	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R942	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R943	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R944	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R945	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R946	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R947	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R948	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R949	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R950	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R951	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R952	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R953	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R954	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R955	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R956	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R957	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R958	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R959	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R960	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R961	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R962	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R963	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R964	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R965	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R966	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R967	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R968	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R969	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R970	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R971	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R972	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R973	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R974	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R975	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R976	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R977	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R978	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R979	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R980	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R981	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R982	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R983	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R984	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R985	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R986	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R987	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R988	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R989	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R990	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R991	1-216-295-00	METAL GLAZE	0	5%	1/10W	

Ref.No.	Part No.	Description				Remark
R992	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R993	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R994	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R995	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R996	1-216-296-00	METAL GLAZE	0	5%	1/8W	
R997	1-216-295-00	METAL GLAZE	0	5%	1/10W	
R998	1-216-295-00	METAL GLAZE	0	5%	1/10W	

VARIABLE RESISTOR

RV103	1-228-993-00	RES, ADJ, CARBON 4.7K
RV104	1-228-995-00	RES, ADJ, CARBON 22K
RV105	1-228-995-00	RES, ADJ, CARBON 22K
RV106	1-228-993-00	RES, ADJ, CARBON 4.7K
RV107	1-228-994-00	RES, ADJ, CARBON 10K
RV108	1-228-993-00	RES, ADJ, CARBON 4.7K
RV110	1-228-989-00	RES, ADJ, CARBON 470
RV111	1-228-996-00	RES, ADJ, CARBON 47K
RV403	1-228-990-00	RES, ADJ, CARBON 1K
RV404	1-228-993-00	RES, ADJ, CARBON 4.7K

TRANSFORMER

T102	1-404-495-00	COIL
T103	1-404-495-00	COIL
T104	1-404-524-11	DAT
T201	1-404-584-11	COIL
T202	1-408-532-00	COIL, VARIABLE
T203	1-408-532-00	COIL, VARIABLE
T204	1-408-513-00	COIL (VARIABLE)
T401	1-404-540-11	COIL

THERMISTOR

TH101	1-800-071-XX	THERMISTER TH0.35K
TH201	1-800-626-00	THERMISTOR

CRYSTAL

X101	1-567-505-11	OSCILLATOR, CRYSTAL
X102	1-567-504-11	OSCILLATOR, CRYSTAL

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***A-1130-718-A BC BOARD, COMPLETE**
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CAPACITOR

C500	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C501	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C502	1-163-129-00	CERAMIC CHIP	330PF	5%	50V
C503	1-163-021-00	CERAMIC CHIP	0.01MF		50V
C504	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C505	1-163-035-00	CERAMIC CHIP	0.047MF		50V
C506	1-163-127-00	CERAMIC CHIP	270PF	5%	50V
C507	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C508	1-135-091-00	TANTAL. CHIP	1MF	10%	16V
C509	1-163-109-00	CERAMIC CHIP	47PF	5%	50V
C510	1-163-021-00	CERAMIC CHIP	0.01MF		50V

DIODE

D450	8-719-100-05	DIODE 1S2837
D451	8-719-100-05	DIODE 1S2837

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description	Remark

IC

IC500	8-759-103-93	IC UPC393C	

COIL

L800	1-410-209-51	INDUCTOR CHIP 27UH	

TRANSISTOR

Q500	8-729-100-66	TRANSISTOR 2SC1623	
Q501	8-729-100-66	TRANSISTOR 2SC1623	
Q502	8-729-100-66	TRANSISTOR 2SC1623	
Q503	8-729-100-66	TRANSISTOR 2SC1623	
Q504	8-729-116-05	TRANSISTOR 2SK160-K5	
Q505	8-729-100-76	TRANSISTOR 2SA812	
Q506	8-729-100-66	TRANSISTOR 2SC1623	

RESISTOR

R800	1-216-057-00	METAL GLAZE 2.2K 5% 1/10W	
R801	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R802	1-216-067-00	METAL GLAZE 5.6K 5% 1/10W	
R803	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R804	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R805	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R806	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R808	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R809	1-216-689-11	METAL CHIP 39K 0.50% 1/10W	
R810	1-216-653-11	METAL CHIP 1.2K 0.50% 1/10W	
R811	1-216-691-11	METAL CHIP 47K 0.50% 1/10W	
R812	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R813	1-216-025-00	METAL GLAZE 100 5% 1/10W	
R814	1-216-121-00	METAL GLAZE 1M 5% 1/10W	
R815	1-216-119-00	METAL GLAZE 820K 5% 1/10W	
R816	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R817	1-216-073-00	METAL GLAZE 10K 5% 1/10W	
R818	1-216-119-00	METAL GLAZE 820K 5% 1/10W	
R819	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R820	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R821	1-216-091-00	METAL GLAZE 56K 5% 1/10W	
R822	1-216-017-00	METAL GLAZE 47 5% 1/10W	
R823	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R824	1-216-049-00	METAL GLAZE 1K 5% 1/10W	
R825	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R826	1-216-097-00	METAL GLAZE 100K 5% 1/10W	
R827	1-216-077-00	METAL GLAZE 15K 5% 1/10W	
R828	1-216-053-00	METAL GLAZE 1.5K 5% 1/10W	
R900	1-216-296-00	METAL GLAZE 0 5% 1/8W	
R901	1-216-295-00	METAL GLAZE 0 5% 1/10W	

CONNECTOR

W1	*1-506-603-11	PLUG, L TYPE (2.0MM PITCH) 10P	

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	*1-621-050-11	PC BOARD ********	

CAPACITOR

C1	⚠1-130-660-11	FILM 20000PF 3% 1.6KV	
C2	⚠1-136-134-11	FILM 1.5MF 5% 400V	

Ref.No.	Part No.	Description	Remark

DIODE

D1	8-719-305-15	DIODE GH3F	
D2	8-719-305-15	DIODE GH3F	

TRANSFORMER

FBT1	⚠1-439-408-11	TRANSFORMER ASSY, FLYBACK	
FBT2	⚠1-439-408-11	TRANSFORMER ASSY, FLYBACK	

COIL

L1	⚠1-459-700-11	COIL, CHOKE 2.1MMH	
L2	⚠1-459-700-11	COIL, CHOKE 2.1MMH	

NEON LAMP

NL1	1-519-237-11	LAMP, NEON	

CONNECTOR

PC1	*1-508-768-00	6P PLUG	

TRANSISTOR

Q1	8-729-208-10	TRANSISTOR 2SD1548	

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	*A-1190-113-A	PA BOARD, COMPLETE ******************	
	*4-363-146-00	HEAT SINK, V.OUT	
	4-383-022-01	SPACER, MICA	
	4-383-023-01	SPACER, MICA	

CAPACITOR

C1	1-123-933-00	ELECT 10MF 20% 160V	
C2	1-123-024-00	ELECT 33MF 160V	
C3	1-136-134-00	FILM 1.5MF 5% 400V	
C4	1-108-700-11	MYLAR 0.047MF 10% 200V	
C5	1-102-030-00	CERAMIC 330PF 10% 500V	
C6	1-123-356-00	ELECT 10MF 20% 25V	
C7	1-123-333-00	ELECT 100MF 20% 16V	
C9	1-123-379-00	ELECT 0.47MF 20% 50V	
C10	1-102-973-00	CERAMIC 100PF 5% 50V	
C11	1-102-244-00	CERAMIC 220PF 10% 500V	
C12	1-108-704-11	MYLAR 0.1MF 10% 200V	
C13	1-123-379-00	ELECT 0.47MF 20% 50V	
C14	1-102-973-00	CERAMIC 100PF 5% 50V	
C15	1-102-244-00	CERAMIC 220PF 10% 500V	
C16	1-108-704-11	MYLAR 0.1MF 10% 200V	
C17	1-123-380-00	ELECT 1MF 20% 50V	
C18	1-123-380-00	ELECT 1MF 20% 50V	
C19	1-162-134-11	CERAMIC 470PF 10% 2KV	
C20	1-126-150-11	ELECT 47MF 20% 350V	
C22	1-108-638-11	MYLAR 0.1MF 10% 100V	
C23	1-123-356-00	ELECT 10MF 20% 25V	
C24	1-123-356-00	ELECT 10MF 20% 25V	
C25	1-124-963-11	ELECT 33MF 20% 16V	
C26	1-123-356-00	ELECT 10MF 20% 16V	
C27	1-123-356-00	ELECT 10MF 20% 16V	
C28	1-124-963-11	ELECT 33MF 20% 16V	
C29	1-124-963-11	ELECT 33MF 20% 16V	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

PA

Ref.No.	Part No.	Description				Remark
C30	1-136-169-00	FILM	0.22MF	5%	50V	
C31	1-123-356-00	ELECT	10MF	20%	16V	
C32	1-124-963-11	ELECT	33MF	20%	16V	
C33	1-123-356-00	ELECT	10MF	20%	16V	
C34	⚠1-123-318-91	ELECT	33MF	20%	16V	
C36	1-108-692-81	MYLAR	0.01MF	10%	200V	
C37	1-123-356-00	ELECT	10MF	20%	16V	
C39	1-102-824-00	CERAMIC	470PF	5%	50V	
C40	1-108-698-11	MYLAR	0.033MF	10%	200V	
C41	1-108-698-11	MYLAR	0.033MF	10%	200V	
C42	1-123-321-00	ELECT	220MF	20%	16V	
C43	1-123-321-00	ELECT	220MF	20%	16V	
C44	1-126-234-11	ELECT	2200MF	20%	16V	
C45	1-126-234-11	ELECT	2200MF	20%	16V	
C46	1-123-932-00	ELECT	4.7MF	20%	160V	
C47	1-123-369-00	ELECT	4.7MF	20%	25V	
C48	1-123-369-00	ELECT	4.7MF	20%	25V	
C49	1-101-006-00	CERAMIC	0.047MF		50V	
C50	1-101-006-00	CERAMIC	0.047MF		50V	
C51	1-123-024-00	ELECT	33MF		160V	
C52	1-108-704-11	MYLAR	0.1MF	10%	200V	
C53	1-162-134-11	CERAMIC	470PF	10%	2KV	
C54	1-123-929-00	ELECT	1MF	20%	160V	
C55	1-124-036-00	ELECT	330MF	20%	16V	
C56	1-136-165-00	FILM	0.1MF	5%	50V	
C57	1-136-165-00	FILM	0.1MF	5%	50V	
C58	1-123-380-00	ELECT	1MF	20%	50V	
C59	1-126-174-51	ELECT	10MF	20%	350V	

DIODE

D1	8-719-928-08	DIODE ERD28-08S
D2	8-719-300-80	DIODE RU-1C
D3	8-719-300-80	DIODE RU-1C
D4	8-719-300-80	DIODE RU-1C
D7	8-719-901-19	DIODE V11N
D8	8-719-918-77	DIODE V19G
D9	8-719-918-77	DIODE V19G
D10	8-719-918-77	DIODE V19G
D11	8-719-918-77	DIODE V19G
D12	8-719-918-77	DIODE V19G
D13	8-719-918-77	DIODE V19G
D14	8-719-305-15	DIODE GH3F
D15	8-719-109-85	DIODE RD5.1ES-B2
D16	8-719-109-85	DIODE RD5.1ES-B2
D17	8-719-109-85	DIODE RD5.1ES-B2
D18	8-719-109-85	DIODE RD5.1ES-B2
D20	8-719-911-19	DIODE 1SS119
D21	8-719-911-19	DIODE 1SS119
D22	8-719-911-19	DIODE 1SS119
D23	8-719-911-19	DIODE 1SS119
D24	8-719-911-19	DIODE 1SS119
D25	8-719-911-19	DIODE 1SS119
D26	8-719-911-19	DIODE 1SS119
D28	8-719-911-19	DIODE 1SS119
D29	8-719-911-19	DIODE 1SS119
D30	8-719-911-19	DIODE 1SS119
D31	8-719-911-19	DIODE 1SS119
D32	8-719-911-19	DIODE 1SS119
D33	8-719-110-36	DIODE RD13ES-B2

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-990-82	IC TL082CP	
IC2	8-759-103-93	IC UPC393C	
IC3	8-759-103-93	IC UPC393C	
IC4	8-759-600-02	IC M5218L	
IC5	⚠8-759-178-12	IC UPC78L12	

COIL

L1	1-459-614-11	COIL, CHOKE 90UH
L2	1-459-700-11	COIL, CHOKE 2.1MMH
L3	1-459-155-00	COIL (WITH CORE) 45UH

NEON LAMP

NL2	1-519-237-11	LAMP, NEON

CONNECTOR

PA1	*1-566-058-11	PIN, CONNECTOR 6P
PA2	*1-566-062-11	PIN, CONNECTOR 10P
PA3	*1-508-768-00	6P PLUG
PA4	*1-566-056-11	PIN, CONNECTOR 4P
PA5	*1-566-057-11	PIN, CONNECTOR 5P
PA6	*1-566-054-11	PIN, CONNECTOR 2P
PA7	*1-566-055-11	PIN, CONNECTOR 3P
PA8	*1-566-059-11	PIN, CONNECTOR 7P
PA9	*1-566-058-11	PIN, CONNECTOR 6P
PA10	*1-566-058-11	PIN, CONNECTOR 6P
PA11	*1-566-058-11	PIN, CONNECTOR 6P
PA12	*1-508-786-00	2P PLUG (M)
PA13	*1-508-786-00	2P PLUG (M)
PA14	*1-508-766-00	4P PLUG (M)
PA15	*1-566-054-11	PIN, CONNECTOR 2P

TRANSISTOR

Q1	8-729-201-62	TRANSISTOR 2SC2555
Q2	⚠8-729-168-82	TRANSISTOR 2SC2688
Q3	8-729-168-82	TRANSISTOR 2SC2688
Q4	8-729-168-82	TRANSISTOR 2SC2688
Q5	8-729-114-22	TRANSISTOR 2SA1142
Q6	⚠8-729-800-80	TRANSISTOR 2SD1399-CA
Q7	8-729-117-54	TRANSISTOR 2SA1175
Q8	8-729-178-54	TRANSISTOR 2SC2785
Q9	8-729-178-54	TRANSISTOR 2SC2785
Q10	8-729-178-54	TRANSISTOR 2SC2785
Q11	8-729-178-54	TRANSISTOR 2SC2785
Q12	8-729-178-54	TRANSISTOR 2SC2785
Q13	8-729-804-48	TRANSISTOR 2SC3675
Q14	8-729-117-54	TRANSISTOR 2SA1175

RESISTOR

R1	1-216-378-11	METAL OXIDE	5.6	5%	2W	F
R2	1-216-488-11	METAL OXIDE	18K	5%	3W	F
R3	1-249-429-11	CARBON	10K	5%	1/4W	
R4	⚠1-215-920-51	METAL OXIDE	3.3K	5%	3W	F
R5	⚠1-215-920-51	METAL OXIDE	3.3K	5%	3W	F
R6	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R7	1-249-417-11	CARBON	1K	5%	1/4W	
R9	1-249-417-11	CARBON	1K	5%	1/4W	
R10	1-249-423-11	CARBON	3.3K	5%	1/4W	
R11	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R12	1-249-421-11	CARBON	2.2K	5%	1/4W	
R13	1-249-420-11	CARBON	1.8K	5%	1/4W	F
R15	1-249-441-11	CARBON	100K	5%	1/4W	
R16	1-249-441-11	CARBON	100K	5%	1/4W	
R17	1-216-359-00	METAL OXIDE	6.8	5%	1W	F

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

- The components identified by ⧗ in this manual have been carefully factory-selected for each set in order to satisfy regulations regarding X-ray radiation. Should replacement be required, replace only with the value originally used.

PA **PB**

Ref.No.	Part No.	Description				Remark
R18	1-215-443-00	METAL	8.2K	1%	1/6W	
R19	1-215-443-00	METAL	8.2K	1%	1/6W	
R20	1-215-441-00	METAL	6.8K	1%	1/6W	
R21	1-215-441-00	METAL	6.8K	1%	1/6W	
R22	1-214-747-00	METAL	5.6K	1%	1/4W	
⧗R23	⚠.	METAL			1/4W	
R24	1-214-777-00	METAL	100K	1%	1/4W	
R25	1-215-471-00	METAL	120K	1%	1/6W	
R26	1-215-471-00	METAL	120K	1%	1/6W	
R27	1-215-453-00	METAL	22K	1%	1/6W	
R28	1-249-423-11	CARBON	3.3K	5%	1/4W	
R29	1-249-433-11	CARBON	22K	5%	1/4W	
R30	1-249-429-11	CARBON	10K	5%	1/4W	
R31	1-215-469-00	METAL	100K	1%	1/6W	
R32	1-249-423-11	CARBON	3.3K	5%	1/4W	
R33	1-215-429-00	METAL	2.2K	1%	1/6W	
R34	1-215-435-00	METAL	3.9K	1%	1/6W	
R35	1-249-423-11	CARBON	3.3K	5%	1/4W	
R36	1-249-417-11	CARBON	1K	5%	1/4W	
R37	1-247-883-00	CARBON	150K	5%	1/4W	
⧗R38	⚠.	CARBON			1/4W	
⧗R39	⚠.	CARBON			1/4W	
R40	1-249-433-11	CARBON	22K	5%	1/4W	
R41	1-249-435-11	CARBON	33K	5%	1/4W	
R42	1-249-438-11	CARBON	56K	5%	1/4W	
R43	1-249-434-11	CARBON	27K	5%	1/4W	
R44	1-249-429-11	CARBON	10K	5%	1/4W	
R45	1-249-423-11	CARBON	3.3K	5%	1/4W	
R46	1-215-453-00	METAL	22K	1%	1/6W	
R47	1-215-455-00	METAL	27K	1%	1/6W	
⧗R48	⚠.	CARBON			1/4W	
⧗R49	⚠.	CARBON			1/4W	
R50	1-215-469-00	METAL	100K	1%	1/6W	
R51	1-215-469-00	METAL	100K	1%	1/6W	
R52	1-249-430-11	CARBON	12K	5%	1/4W	
R53	1-249-433-11	CARBON	22K	5%	1/4W	
R54	1-249-433-11	CARBON	22K	5%	1/4W	
R55	1-249-430-11	CARBON	12K	5%	1/4W	
R56	1-249-419-11	CARBON	1.5K	5%	1/4W	
R57	⚠1-249-473-91	CARBON	0.82	5%	1/2W	F
R58	1-244-937-00	CARBON	470K	5%	1/2W	
R59	1-217-202-11	WIREWOUND	1.5	10%	2W	F
R60	1-215-477-00	METAL	220K	1%	1/6W	
R61	1-215-457-00	METAL	33K	1%	1/6W	
R62	1-249-435-11	CARBON	33K	5%	1/4W	
R63	1-247-903-00	CARBON	1M	5%	1/4W	
R64	1-249-439-11	CARBON	68K	5%	1/4W	
R65	1-249-429-11	CARBON	10K	5%	1/4W	
R66	1-249-405-11	CARBON	100	5%	1/4W	
R67	1-215-453-00	METAL	22K	1%	1/6W	
R68	1-249-440-11	CARBON	82K	5%	1/4W	
R69	1-249-429-11	CARBON	10K	5%	1/4W	
R70	1-249-435-11	CARBON	33K	5%	1/4W	
R71	1-249-435-11	CARBON	33K	5%	1/4W	
R72	⚠1-215-920-51	METAL OXIDE	3.3K	5%	3W	F
R73	1-246-523-00	CARBON	120K	5%	1/4W	
R74	1-249-429-11	CARBON	10K	5%	1/4W	
R75	1-202-730-00	SOLID	8.2M	10%	1/2W	
R76	1-216-488-11	METAL OXIDE	18K	5%	3W	F
R77	1-249-417-11	CARBON	1K	5%	1/4W	
R78	1-249-433-11	CARBON	22K	5%	1/4W	F
R79	1-215-483-00	METAL	390K	1%	1/6W	
R80	1-249-423-11	CARBON	3.3K	5%	1/4W	
R81	1-202-597-91	SOLID	10K	5%	1/2W	
R82	1-249-423-11	CARBON	3.3K	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R83	1-249-425-11	CARBON	4.7K	5%	1/4W	
R84	1-249-417-11	CARBON	1K	5%	1/4W	
R85	1-215-469-00	METAL	100K	1%	1/6W	
R86	1-215-469-00	METAL	100K	1%	1/6W	
R87	1-215-453-00	METAL	22K	1%	1/6W	
⧗R88	⚠.	CARBON			1/4W	
⧗R89	⚠.	CARBON			1/4W	
R90	1-249-417-11	CARBON	1K	5%	1/4W	
R91	1-249-429-11	CARBON	10K	5%	1/4W	
R92	1-249-429-11	CARBON	10K	5%	1/4W	

SPARK GAP

SG1	1-519-063-XX	DISCHARGING GAP

TRANSFORMER

T1	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE
T2	1-437-090-00	HDT
T3	⚠.1-437-078-11	TRANSFORMER, HORIZONTAL DRIVE
T4	⚠.1-439-409-11	LOT
T5	⚠ 1-413-059-11	TRANSFORMER, FERRITE (DFT)

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*1-621-054-11 PB BOARD
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CAPACITOR

C1	1-124-257-00	ELECT	2.2MF	20%	50V
C2	1-126-094-11	ELECT	4.7MF	20%	25V
C3	1-136-159-00	FILM	0.033MF	5%	50V
C5	1-102-106-00	CERAMIC	100PF	10%	50V
C6	1-130-475-00	MYLAR	0.0022MF	5%	50V
C7	1-126-157-11	ELECT	10MF	20%	16V
C8	1-136-169-00	FILM	0.22MF	5%	50V
C9	1-130-475-00	MYLAR	0.0022MF	5%	50V

IC

IC1	8-759-100-75	IC UPC1394C

RESISTOR

R2	1-249-417-11	CARBON	1K	5%	1/4W
R3	1-249-434-11	CARBON	27K	5%	1/4W
R4	1-249-431-11	CARBON	15K	5%	1/4W
R5	1-249-441-11	CARBON	100K	5%	1/4W
R6	1-249-435-11	CARBON	33K	5%	1/4W
R7	1-249-429-11	CARBON	10K	5%	1/4W
R8	1-249-413-11	CARBON	470	5%	1/4W
R9	1-249-428-11	CARBON	8.2K	5%	1/4W
R10	1-249-437-11	CARBON	47K	5%	1/4W
R11	1-249-440-11	CARBON	82K	5%	1/4W
R12	1-249-436-11	CARBON	39K	5%	1/4W
R14	1-249-428-11	CARBON	8.2K	5%	1/4W

CONNECTOR

W1	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P
W2	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

FA **FC** **QA**

Ref.No.	Part No.	Description				Remark
	*1-621-056-11	FA BOARD ********				

CAPACITOR

Ref.No.	Part No.	Description				Remark
C1	⚠1-136-360-51	FILM	0.22MF	20%	250V	
C2	⚠1-136-360-51	FILM	0.22MF	20%	250V	
C3	⚠1-136-360-51	FILM	0.22MF	20%	250V	
C4	1-162-599-12	CERAMIC	0.0047MF	20%	400V	
C5	1-162-599-12	CERAMIC	0.0047MF	20%	400V	
C6	⚠1-161-742-51	CERAMIC	0.0022MF	20%	400V	
C7	⚠1-161-742-51	CERAMIC	0.0022MF	20%	400V	
C8	1-125-469-11	ELECT(BLOCK)	820MF	20%	200V	
C9	1-125-469-11	ELECT(BLOCK)	820MF	20%	200V	
C10	1-101-003-00	CERAMIC	0.0047MF		50V	
C11	1-101-003-00	CERAMIC	0.0047MF		50V	
C12	1-123-362-00	ELECT	330MF	20%	50V	

DIODE

Ref.No.	Part No.	Description	Remark
D1	⚠8-719-503-06	DIODE S3WB60Z	
D2	8-719-511-40	DIODE S1VB40	
D3	8-719-931-33	DIODE EQB01-33	

CONNECTOR

Ref.No.	Part No.	Description	Remark
FA1	*1-508-765-00	3P PLUG (M)	
FA2	*1-508-765-00	3P PLUG (M)	
FA3	*1-566-055-11	PIN, CONNECTOR 3P	
FA4	*1-508-786-00	2P PLUG (M)	

COIL

Ref.No.	Part No.	Description	Remark
L1	⚠1-459-595-11	COIL, CHOKE	
L2	⚠1-459-595-11	COIL, CHOKE	

RESISTOR

Ref.No.	Part No.	Description				Remark
R1	1-202-723-00	SOLID	2.2M	10%	1/2W	
R2	⚠1-205-798-11	WIREWOUND	1.5	5%	20W	F
R3	1-214-921-00	CARBON	220K	5%	1/2W	
R4	1-214-921-00	CARBON	220K	5%	1/2W	
R5	1-249-405-11	CARBON	100	5%	1/4W	

SWITCH

Ref.No.	Part No.	Description	Remark
SW1	⚠1-570-971-11	SWITCH, SLIDE	

TRANSFORMER

Ref.No.	Part No.	Description	Remark
T1	⚠1-421-944-11	TRANSFORMER, LINE FILTER	
T2	⚠1-448-374-11	TRANSFORMER, POWER	
T3	1-421-776-11	LFT	

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Ref.No.	Part No.	Description	Remark
	*1-621-058-11	FC BOARD ********	
	*1-533-146-00	HOLDER, FUSE	

FUSE

Ref.No.	Part No.	Description	Remark
F1	⚠1-532-299-11	FUSE, TIME-LAG 5A/250V	

CONNECTOR

Ref.No.	Part No.	Description	Remark
FC1	*1-508-786-00	2P PLUG (M)	

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Ref.No.	Part No.	Description	Remark
	*A-1270-237-A	QA BOARD, COMPLETE ******************	
	1-537-062-11	TERMINAL BOARD, INPUT/OUTPUT	
	*3-683-631-01	CLAMP	

CAPACITOR

Ref.No.	Part No.	Description				Remark
C1	1-124-963-11	ELECT	33MF	20%	16V	
C3	1-124-284-00	ELECT	10MF	20%	16V	
C4	1-101-006-00	CERAMIC	0.047MF		50V	
C5	1-124-963-11	ELECT	33MF	20%	16V	
C7	1-124-284-00	ELECT	10MF	20%	16V	
C8	1-101-006-00	CERAMIC	0.047MF		50V	
C9	1-124-963-11	ELECT	33MF	20%	16V	
C11	1-124-284-00	ELECT	10MF	20%	16V	
C12	1-101-006-00	CERAMIC	0.047MF		50V	
C13	1-124-963-11	ELECT	33MF	20%	16V	
C14	1-102-973-00	CERAMIC	100PF	5%	50V	
C15	1-126-101-11	ELECT	100MF	20%	16V	
C16	1-124-963-11	ELECT	33MF	20%	16V	
C17	1-102-973-00	CERAMIC	100PF	5%	50V	
C18	1-126-101-11	ELECT	100MF	20%	16V	
C19	1-123-356-00	ELECT	10MF	20%	16V	
C20	1-108-843-11	MYLAR	0.033MF	10%	50V	
C21	1-126-101-11	ELECT	100MF	20%	16V	
C22	1-101-006-00	CERAMIC	0.047MF		50V	
C23	1-124-119-00	ELECT	330MF	20%	16V	
C24	1-101-006-00	CERAMIC	0.047MF		50V	
C25	1-124-119-00	ELECT	330MF	20%	16V	
C32	1-126-101-11	ELECT	100MF	20%	16V	
C33	1-123-356-00	ELECT	10MF	20%	16V	
C34	1-101-006-00	CERAMIC	0.047MF		50V	
C35	1-123-356-00	ELECT	10MF	20%	16V	
C36	1-123-356-00	ELECT	10MF	20%	16V	
C37	1-123-356-00	ELECT	10MF	20%	16V	
C38	1-101-006-00	CERAMIC	0.047MF		50V	
C39	1-124-963-11	ELECT	33MF	20%	16V	
C40	1-130-483-00	MYLAR	0.01MF	10%	50V	
C41	1-123-356-00	ELECT	10MF	20%	16V	
C43	1-101-004-00	CERAMIC	0.01MF		50V	
C44	1-123-356-00	ELECT	10MF	20%	16V	
C45	1-101-004-00	CERAMIC	0.01MF		50V	
C46	1-101-004-00	CERAMIC	0.01MF		50V	
C47	1-101-880-00	CERAMIC	47PF	5%	50V	
C48	1-102-971-00	CERAMIC	82PF	5%	50V	
C49	1-123-380-00	ELECT	1MF	20%	50V	
C50	1-124-360-00	ELECT	1000MF	20%	16V	
C51	1-123-380-00	ELECT	1MF	20%	50V	
C52	1-123-332-00	ELECT	47MF	20%	16V	
C53	1-108-843-11	MYLAR	0.033MF	10%	50V	
C54	1-123-356-00	ELECT	10MF	20%	25V	
C55	1-123-356-00	ELECT	10MF	20%	16V	
C56	1-123-380-00	ELECT	1MF	20%	50V	
C57	1-102-965-00	CERAMIC	39PF	5%	50V	
C58	⚠1-101-006-91	CERAMIC	0.047MF		50V	
C59	1-124-284-00	ELECT	10MF	20%	16V	
C70	1-123-356-00	ELECT	10MF	20%	16V	
C72	1-102-951-00	CERAMIC	15PF	5%	50V	

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Ref.No.	Part No.	Description			Remark
C73	1-102-951-00	CERAMIC	15PF	5%	50V
C74	1-123-332-00	ELECT	47MF	20%	16V
C75	1-123-356-00	ELECT	10MF	20%	16V
C76	1-124-360-00	ELECT	1000MF	20%	16V

DIODE

D1	8-719-911-19	DIODE 1SS119
D2	8-719-911-19	DIODE 1SS119
D3	8-719-911-19	DIODE 1SS119
D4	8-719-911-19	DIODE 1SS119
D5	8-719-911-19	DIODE 1SS119
D6	8-719-911-19	DIODE 1SS119
D7	8-719-911-19	DIODE 1SS119
D8	8-719-911-19	DIODE 1SS119
D9	8-719-911-19	DIODE 1SS119
D10	8-719-911-19	DIODE 1SS119
D11	8-719-911-19	DIODE 1SS119
D12	8-719-911-19	DIODE 1SS119
D13	8-719-911-19	DIODE 1SS119
D14	8-719-911-55	DIODE U05G
D15	8-719-911-55	DIODE U05G
D16	8-719-911-55	DIODE U05G
D17	8-719-911-19	DIODE 1SS119
D18	8-719-911-55	DIODE U05G
D19	8-719-109-85	DIODE RD5.1ES-B2
D20	8-719-911-19	DIODE 1SS119
D21	8-719-911-19	DIODE 1SS119
D25	8-719-911-19	DIODE 1SS119
D26	8-719-911-19	DIODE 1SS119
D27	8-719-911-19	DIODE 1SS119

IC

IC1	8-759-103-93	IC UPC393C
IC2	8-759-340-53	IC HD14053BP
IC3	8-759-208-94	IC CX894
IC4	8-759-208-94	IC CX894
IC5	8-759-133-90	IC UPC339C
IC6	8-757-948-00	IC CX7948
IC7	⚠8-759-700-14	IC NJM78M09A
IC8	⚠8-759-700-11	IC NJM78M05A
IC9	⚠8-759-700-15	IC NJM78M12A
IC10	8-759-170-12	IC UPC78M12H

TRANSISTOR

Q1	8-729-178-54	TRANSISTOR 2SC2785
Q2	8-729-178-54	TRANSISTOR 2SC2785
Q3	8-729-178-54	TRANSISTOR 2SC2785
Q4	8-729-178-54	TRANSISTOR 2SC2785
Q5	8-729-178-54	TRANSISTOR 2SC2785
Q6	8-729-178-54	TRANSISTOR 2SC2785
Q7	8-729-177-43	TRANSISTOR 2SD774
Q8	8-729-178-54	TRANSISTOR 2SC2785
Q9	8-729-103-43	TRANSISTOR 2SB734
Q12	8-729-178-54	TRANSISTOR 2SC2785
Q13	8-729-178-54	TRANSISTOR 2SC2785
Q14	8-729-178-54	TRANSISTOR 2SC2785
Q15	8-729-103-43	TRANSISTOR 2SB734
Q16	8-729-178-54	TRANSISTOR 2SC2785
Q17	8-729-103-43	TRANSISTOR 2SB734
Q18	8-729-178-54	TRANSISTOR 2SC2785
Q19	8-729-900-85	TRANSISTOR DTC144WS
Q25	8-729-900-85	TRANSISTOR DTC144WS
Q26	8-729-384-48	TRANSISTOR 2SA844
Q27	8-729-178-54	TRANSISTOR 2SC2785

Ref.No.	Part No.	Description	Remark
Q28	8-729-178-54	TRANSISTOR 2SC2785	
Q29	8-729-178-54	TRANSISTOR 2SC2785	
Q30	8-729-178-54	TRANSISTOR 2SC2785	

CONNECTOR

QA1	*1-566-063-11	PIN, CONNECTOR 11P
QA2	*1-566-054-11	PIN, CONNECTOR 2P
QA3	*1-566-063-11	PIN, CONNECTOR 11P
QA4	*1-566-064-11	PIN, CONNECTOR 12P
QA5	*1-566-060-11	PIN, CONNECTOR 8P
QA6	*1-566-055-11	PIN, CONNECTOR 3P
QA7	*1-566-056-11	PIN, CONNECTOR 4P
QA8	*1-566-059-11	PIN, CONNECTOR 7P
QA9	*1-566-058-11	PIN, CONNECTOR 6P
QA10	*1-566-056-11	PIN, CONNECTOR 4P
QA12	*1-508-786-00	2P PLUG (M)
QA13	*1-566-060-11	PIN, CONNECTOR 8P
QA14	*1-566-060-11	PIN, CONNECTOR 8P
QA15	*1-566-057-11	PIN, CONNECTOR 5P
QA16	*1-566-054-11	PIN, CONNECTOR 2P

RESISTOR

R1	1-214-702-00	METAL	75	1%	1/4W
R2	1-249-434-11	CARBON	27K	5%	1/4W
R3	1-249-438-11	CARBON	56K	5%	1/4W
R4	1-249-417-11	CARBON	1K	5%	1/4W
R5	1-249-421-11	CARBON	2.2K	5%	1/4W
R6	1-249-405-11	CARBON	100	5%	1/4W
R7	1-249-393-11	CARBON	10	5%	1/4W
R8	1-247-711-11	CARBON	680	5%	1/4W
R9	1-214-702-00	METAL	75	1%	1/4W
R10	1-249-434-11	CARBON	27K	5%	1/4W
R11	1-249-438-11	CARBON	56K	5%	1/4W
R12	1-249-417-11	CARBON	1K	5%	1/4W
R13	1-249-421-11	CARBON	2.2K	5%	1/4W
R14	1-249-405-11	CARBON	100	5%	1/4W
R15	1-249-393-11	CARBON	10	5%	1/4W
R16	1-247-711-11	CARBON	680	5%	1/4W
R17	1-214-702-00	METAL	75	1%	1/4W
R18	1-249-434-11	CARBON	27K	5%	1/4W
R19	1-249-438-11	CARBON	56K	5%	1/4W
R20	1-249-417-11	CARBON	1K	5%	1/4W
R21	1-249-421-11	CARBON	2.2K	5%	1/4W
R22	1-249-405-11	CARBON	100	5%	1/4W
R23	1-249-393-11	CARBON	10	5%	1/4W
R24	1-247-711-11	CARBON	680	5%	1/4W
R25	1-214-702-00	METAL	75	1%	1/4W
R26	1-249-417-11	CARBON	1K	5%	1/4W
R27	1-249-439-11	CARBON	68K	5%	1/4W
R28	1-249-420-11	CARBON	1.8K	5%	1/4W
R29	1-249-437-11	CARBON	47K	5%	1/4W
R30	1-214-702-00	METAL	75	1%	1/4W
R31	1-249-417-11	CARBON	1K	5%	1/4W
R32	1-249-439-11	CARBON	68K	5%	1/4W
R33	1-249-420-11	CARBON	1.8K	5%	1/4W
R34	1-249-437-11	CARBON	47K	5%	1/4W
R35	1-249-410-11	CARBON	270	5%	1/4W
R36	1-249-429-11	CARBON	10K	5%	1/4W
R37	1-249-405-11	CARBON	100	5%	1/4W
R38	1-249-465-11	CARBON	47K	5%	1/4W
R39	1-249-437-11	CARBON	47K	5%	1/4W
R40	1-249-438-11	CARBON	56K	5%	1/4W
R41	1-249-417-11	CARBON	1K	5%	1/4W

QA **QB**

The components identified by shading and mark ⚠ are critical for safety.
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Ref.No.	Part No.	Description				Remark
R42	1-249-417-11	CARBON	1K	5%	1/4W	
R43	1-249-417-11	CARBON	1K	5%	1/4W	
R44	1-247-713-11	CARBON	1K	5%	1/4W	
R45	1-249-417-11	CARBON	1K	5%	1/4W	
R46	1-249-423-11	CARBON	3.3K	5%	1/4W	
R47	1-249-419-11	CARBON	1.5K	5%	1/4W	
R48	1-249-423-11	CARBON	3.3K	5%	1/4W	
R49	1-249-424-11	CARBON	3.9K	5%	1/4W	
R50	1-249-439-11	CARBON	68K	5%	1/4W	
R51	1-249-423-11	CARBON	3.3K	5%	1/4W	
R52	1-249-403-11	CARBON	68	5%	1/4W	
R53	1-249-402-11	CARBON	56	5%	1/4W	
R54	1-249-417-11	CARBON	1K	5%	1/4W	
R55	1-249-417-11	CARBON	1K	5%	1/4W	
R56	1-249-417-11	CARBON	1K	5%	1/4W	
R57	1-249-398-11	CARBON	27	5%	1/4W	
R58	1-249-398-11	CARBON	27	5%	1/4W	
R59	1-249-398-11	CARBON	27	5%	1/4W	
R60	1-246-529-00	CARBON	220K	5%	1/4W	
R61	1-249-437-11	CARBON	47K	5%	1/4W	
R62	1-215-441-00	METAL	6.8K	1%	1/6W	
R63	1-215-447-00	METAL	12K	1%	1/6W	
R64	1-247-711-11	CARBON	680	5%	1/4W	
R65	1-215-441-00	METAL	6.8K	1%	1/6W	
R66	1-215-441-00	METAL	6.8K	1%	1/6W	
R67	1-247-711-11	CARBON	680	5%	1/4W	
R74	1-215-394-00	METAL	75	1%	1/6W	
R78	1-214-702-00	METAL	75	1%	1/4W	
R80	1-249-407-11	CARBON	150	5%	1/4W	
R81	1-249-407-11	CARBON	150	5%	1/4W	
R82	1-249-429-11	CARBON	10K	5%	1/4W	
R83	1-249-436-11	CARBON	39K	5%	1/4W	
R84	1-249-407-11	CARBON	150	5%	1/4W	
R85	1-249-429-11	CARBON	10K	5%	1/4W	
R86	1-249-429-11	CARBON	10K	5%	1/4W	
R87	1-249-429-11	CARBON	10K	5%	1/4W	
R88	1-249-429-11	CARBON	10K	5%	1/4W	
R89	1-249-433-11	CARBON	22K	5%	1/4W	
R90	1-249-433-11	CARBON	22K	5%	1/4W	
R91	1-249-433-11	CARBON	22K	5%	1/4W	
R92	1-249-433-11	CARBON	22K	5%	1/4W	
R93	⚠.1-247-851-91	CARBON	6.8K	5%	1/4W	
R94	⚠.1-247-855-91	CARBON	10K	5%	1/4W	
R95	1-249-417-11	CARBON	1K	5%	1/4W	
R96	1-249-429-11	CARBON	10K	5%	1/4W	
R97	1-249-427-11	CARBON	6.8K	5%	1/4W	
R98	1-249-417-11	CARBON	1K	5%	1/4W	
R99	1-247-903-00	CARBON	1M	5%	1/4W	
R100	1-249-439-11	CARBON	68K	5%	1/4W	
R101	1-249-439-11	CARBON	68K	5%	1/4W	
R102	1-249-428-11	CARBON	8.2K	5%	1/4W	
R103	1-249-429-11	CARBON	10K	5%	1/4W	
R104	1-249-429-11	CARBON	10K	5%	1/4W	
R105	1-249-427-11	CARBON	6.8K	5%	1/4W	
R106	1-249-441-11	CARBON	100K	5%	1/4W	
R107	1-247-883-00	CARBON	150K	5%	1/4W	
R108	1-249-420-11	CARBON	1.8K	5%	1/4W	
R109	1-249-437-11	CARBON	47K	5%	1/4W	
R110	1-249-437-11	CARBON	47K	5%	1/4W	
R111	1-249-427-11	CARBON	6.8K	5%	1/4W	
R112	1-249-415-11	CARBON	680	5%	1/4W	
R113	1-247-721-11	CARBON	4.7K	5%	1/4W	
R114	1-249-416-11	CARBON	820	5%	1/4W	
R115	1-249-436-11	CARBON	39K	5%	1/4W	
R116	1-249-438-11	CARBON	56K	5%	1/4W	
R117	1-249-433-11	CARBON	22K	5%	1/4W	
R130	1-214-702-00	METAL	75	1%	1/4W	
R131	1-249-407-11	CARBON	150	5%	1/4W	
R132	1-249-402-11	CARBON	56	5%	1/4W	
R133	1-249-417-11	CARBON	1K	5%	1/4W	
R134	1-249-402-11	CARBON	56	5%	1/4W	
R135	1-249-421-11	CARBON	2.2K	5%	1/4W	
R136	1-214-716-00	METAL	300	1%	1/4W	
R137	1-214-705-00	METAL	100	1%	1/4W	
R138	1-249-405-11	CARBON	100	5%	1/4W	
R139	1-249-421-11	CARBON	2.2K	5%	1/4W	
R140	1-249-405-11	CARBON	100	5%	1/4W	
R141	1-249-421-11	CARBON	2.2K	5%	1/4W	
R142	1-249-417-11	CARBON	1K	5%	1/4W	
R143	1-249-417-11	CARBON	1K	5%	1/4W	
R144	1-249-421-11	CARBON	2.2K	5%	1/4W	
R145	1-249-417-11	CARBON	1K	5%	1/4W	
R146	1-249-429-11	CARBON	10K	5%	1/4W	
R147	1-249-421-11	CARBON	2.2K	5%	1/4W	
R148	1-249-405-11	CARBON	100	5%	1/4W	
R149	1-249-414-11	CARBON	560	5%	1/4W	
R150	1-215-394-00	METAL	75	1%	1/6W	
R151	1-249-401-11	CARBON	47	5%	1/4W	
R152	1-249-417-11	CARBON	1K	5%	1/4W	

CRYSTAL

X1	1-567-505-11	OSCILLATOR, CRYSTAL

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*A-1270-238-A QB BOARD, COMPLETE
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1-537-167-11 TERMINAL BOARD, INPUT/OUTPUT

CAPACITOR

C201	1-102-114-00	CERAMIC	470PF	10%	50V
C202	1-124-927-11	ELECT	4.7MF	20%	50V
C203	1-101-004-00	CERAMIC	0.01MF		50V
C204	1-123-380-00	ELECT	1MF	20%	50V
C205	1-123-356-00	ELECT	10MF	20%	16V
C209	1-102-114-00	CERAMIC	470PF	10%	50V
C210	1-102-114-00	CERAMIC	470PF	10%	50V
C211	1-123-380-00	ELECT	1MF	20%	50V
C212	1-124-499-11	ELECT	1MF	20%	50V
C213	1-123-356-00	ELECT	10MF	20%	16V
C214	1-102-114-00	CERAMIC	470PF	10%	50V
C215	1-126-101-11	ELECT	100MF	20%	16V
C216	1-123-332-00	ELECT	47MF	20%	16V
C217	1-123-356-00	ELECT	10MF	20%	25V
C218	1-123-369-00	ELECT	4.7MF	20%	25V
C219	1-123-332-00	ELECT	47MF	20%	16V
C220	1-123-332-00	ELECT	47MF	20%	16V
C221	1-126-103-11	ELECT	470MF	20%	16V
C222	1-126-103-11	ELECT	470MF	20%	16V
C223	1-108-845-00	MYLAR	0.047MF	10%	50V
C224	1-124-557-11	ELECT	1000MF	20%	25V
C225	1-101-006-00	CERAMIC	0.047MF		50V
C226	1-123-356-00	ELECT	10MF	20%	16V
C227	1-123-356-00	ELECT	10MF	20%	16V
C228	1-101-006-00	CERAMIC	0.047MF		50V
C229	1-126-103-11	ELECT	470MF	20%	16V
C235	1-136-165-00	FILM	0.1MF	5%	50V
C236	1-136-153-00	FILM	0.01MF	5%	50V

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description				Remark
		CONNECTOR				
CNJ201	*1-566-980-11	CONNECTOR, ROUND TYPE 4P				
QB1	*1-566-063-11	PIN, CONNECTOR 11P				
QB2	*1-566-054-11	PIN, CONNECTOR 2P				
QB3	*1-566-060-11	PIN, CONNECTOR 8P				
QB4	*1-566-056-11	PIN, CONNECTOR 4P				
QB5	*1-566-055-11	PIN, CONNECTOR 3P				
QB6	*1-566-055-11	PIN, CONNECTOR 3P				
QB7	*1-566-055-11	PIN, CONNECTOR 3P				
		DIODE				
D201	8-719-110-36	DIODE RD13ES-B2				
D202	8-719-911-19	DIODE 1SS119				
D203	8-719-911-19	DIODE 1SS119				
D204	8-719-911-19	DIODE 1SS119				
D205	8-719-911-19	DIODE 1SS119				
D206	8-719-911-19	DIODE 1SS119				
		IC				
IC201	8-759-103-93	IC UPC393C				
IC202	8-759-208-94	IC CX894				
IC203	8-759-800-59	IC LA2600				
IC204 ⚠	8-759-101-77	IC UPC1241H				
IC205	8-759-708-09	IC NJM78L09A				
IC206	8-759-170-12	IC UPC78M12H				
IC207	8-759-700-24	IC NJM79M12A				
IC210	8-759-340-53	IC HD14053BP				
		TRANSISTOR				
Q201	8-729-178-54	TRANSISTOR 2SC2785				
Q202	8-729-178-54	TRANSISTOR 2SC2785				
Q203	8-729-117-54	TRANSISTOR 2SA1175				
Q204	8-729-178-54	TRANSISTOR 2SC2785				
Q205	8-729-900-85	TRANSISTOR DTC144WS				
Q206	8-729-900-85	TRANSISTOR DTC144WS				
Q210	8-729-178-54	TRANSISTOR 2SC2785				
Q211	8-729-178-54	TRANSISTOR 2SC2785				
		RESISTOR				
R201	1-249-438-11	CARBON	56K	5%	1/4W	
R202	1-249-435-11	CARBON	33K	5%	1/4W	
R203	1-249-423-11	CARBON	3.3K	5%	1/4W	
R204	1-249-438-11	CARBON	56K	5%	1/4W	
R205	1-249-430-11	CARBON	12K	5%	1/4W	
R206	1-249-437-11	CARBON	47K	5%	1/4W	
R207	1-249-433-11	CARBON	22K	5%	1/4W	
R208	1-249-433-11	CARBON	22K	5%	1/4W	
R212	1-249-438-11	CARBON	56K	5%	1/4W	
R213	1-249-429-11	CARBON	10K	5%	1/4W	
R214	1-249-435-11	CARBON	33K	5%	1/4W	
R215	1-249-437-11	CARBON	47K	5%	1/4W	
R216	1-249-429-11	CARBON	10K	5%	1/4W	
R217	1-249-437-11	CARBON	47K	5%	1/4W	
R218	1-247-887-00	CARBON	220K	5%	1/4W	
R219	1-249-429-11	CARBON	10K	5%	1/4W	
R220	1-249-419-11	CARBON	1.5K	5%	1/4W	
R221	1-249-408-11	CARBON	180	5%	1/4W	
R222	1-249-421-11	CARBON	2.2K	5%	1/4W	
R223	1-249-421-11	CARBON	2.2K	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R224	1-249-419-11	CARBON	1.5K	5%	1/4W	
R225	1-249-381-11	CARBON	1	5%	1/4W	F
R226	1-249-435-11	CARBON	33K	5%	1/4W	
R227	1-249-429-11	CARBON	10K	5%	1/4W	
R228	1-249-435-11	CARBON	33K	5%	1/4W	
R229	1-249-429-11	CARBON	10K	5%	1/4W	
R230	1-249-417-11	CARBON	1K	5%	1/4W	
R231	1-249-411-11	CARBON	330	5%	1/4W	
R235	1-249-417-11	CARBON	1K	5%	1/4W	
R236	1-247-104-00	CARBON	75	5%	1/4W	
R237	1-249-429-11	CARBON	10K	5%	1/4W	
R238	1-249-425-11	CARBON	4.7K	5%	1/4W	
R239	1-249-405-11	CARBON	100	5%	1/4W	
R240	1-249-421-11	CARBON	2.2K	5%	1/4W	
R241	1-249-401-11	CARBON	47	5%	1/4W	
R242	1-249-401-11	CARBON	47	5%	1/4W	
R243	1-249-405-11	CARBON	100	5%	1/4W	
R244	1-249-401-11	CARBON	47	5%	1/4W	
R245	1-249-417-11	CARBON	1K	5%	1/4W	
R246	1-249-417-11	CARBON	1K	5%	1/4W	
R248	1-249-421-11	CARBON	2.2K	5%	1/4W	
R249	1-249-401-11	CARBON	47	5%	1/4W	

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	*1-621-068-11	CR BOARD ********			
	1-526-812-11	SOCKET, PICTURE TUBE			
	1-556-880-81	LEAD ASSY, HIGH-VOLTAGE			
	4-371-837-01	SPACER (TO-126), BN			
	*4-383-071-01	BRACKET, TRANSISTOR			
		CAPACITOR			
C701	1-101-006-00	CERAMIC	0.047MF		50V
C702	1-136-165-00	FILM	0.1MF	5%	50V
C704 ⚠	1-126-174-51	ELECT	10MF	20%	350V
C705	1-102-050-00	CERAMIC	0.01MF		500V
C706	1-162-115-00	CERAMIC	330PF	10%	2KV
C707	1-162-115-00	CERAMIC	330PF	10%	2KV
C708	1-108-833-00	MYLAR	0.0047MF	10%	50V
C709	1-101-006-00	CERAMIC	0.047MF		50V
		CONNECTOR			
CR1	*1-508-784-00	1P PLUG			
CR2	*1-508-786-00	2P PLUG (M)			
CR3	*1-566-058-11	PIN, CONNECTOR 6P			
CR4	*1-566-057-11	PIN, CONNECTOR 5P			
CR5	*1-566-054-11	PIN, CONNECTOR 2P			
		DIODE			
D701	8-719-911-19	DIODE 1SS119			
D702	8-719-911-19	DIODE 1SS119			
D703	8-719-911-19	DIODE 1SS119			
D704	8-719-911-19	DIODE 1SS119			
D705	8-719-911-19	DIODE 1SS119			
D706	8-719-911-19	DIODE 1SS119			
D707	8-719-110-36	DIODE RD13ES-B2			
		COIL			
L701	1-407-364-00	COIL, SPOOK CHOKE 3.3UH			
L702	1-407-364-00	COIL, SPOOK CHOKE 3.3UH			
L703	1-410-474-41	INDUCTOR	22UH		

CR **CG** **CB**

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description		Remark
L704	1-410-474-41	INDUCTOR	22UH	

TRANSISTOR

Q701	8-729-801-97	TRANSISTOR 2SC3503
Q702	8-729-801-97	TRANSISTOR 2SC3503
Q703	8-729-801-87	TRANSISTOR 2SA1381-D
Q704	8-729-801-87	TRANSISTOR 2SA1381-D

RESISTOR

R701	1-249-405-11	CARBON	100	5%	1/4W	F
R703	⚠1-249-405-91	CARBON	100	5%	1/4W	F
R704	1-215-926-00	METAL OXIDE	33K	5%	3W	F
R705	1-215-431-00	METAL	2.7K	1%	1/6W	
R706	1-216-510-11	METAL OXIDE	8.2K	5%	5W	F
R707	1-247-700-11	CARBON	100	5%	1/4W	F
R708	1-202-561-00	SOLID	330	10%	1/2W	
R709	1-202-828-11	SOLID	6.8K	10%	1/2W	
R710	1-202-847-00	SOLID	560K	10%	1/2W	
R711	1-202-847-00	SOLID	560K	10%	1/2W	
R712	1-202-814-11	SOLID	33K	10%	1/2W	
R713	⚠1-249-421-91	CARBON	2.2K	5%	1/4W	F

SPARK GAP

SG701	1-519-063-XX	DISCHARGING GAP

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*1-621-069-11 CG BOARD
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1-526-812-11	SOCKET, PICTURE TUBE
1-556-880-51	LEAD ASSY, HIGH-VOLTAGE
4-371-837-01	SPACER (TO-126), BN
*4-383-071-01	BRACKET, TRANSISTOR

CAPACITOR

C721	1-101-006-00	CERAMIC	0.047MF		50V
C722	1-136-165-00	FILM	0.1MF	5%	50V
C724	⚠1-126-174-51	ELECT	10MF	20%	350V
C725	1-102-050-00	CERAMIC	0.01MF		500V
C726	1-162-115-00	CERAMIC	330PF	10%	2KV
C727	1-162-115-00	CERAMIC	330PF	10%	2KV
C728	1-108-833-00	MYLAR	0.0047MF	10%	50V
C729	1-101-006-00	CERAMIC	0.047MF		50V

CONNECTOR

CG1	*1-508-784-00	1P PLUG
CG2	*1-508-786-00	2P PLUG (M)
CG3	*1-566-058-11	PIN, CONNECTOR 6P
CG4	*1-566-057-11	PIN, CONNECTOR 5P
CG5	*1-566-054-11	PIN, CONNECTOR 2P

DIODE

D721	8-719-911-19	DIODE 1SS119
D722	8-719-911-19	DIODE 1SS119
D723	8-719-911-19	DIODE 1SS119
D724	8-719-911-19	DIODE 1SS119
D725	8-719-911-19	DIODE 1SS119
D726	8-719-911-19	DIODE 1SS119
D727	8-719-110-36	DIODE RD13ES-B2

Ref.No.	Part No.	Description		Remark

COIL

L721	1-407-364-00	COIL, SPOOK CHOKE	3.3UH
L722	1-407-364-00	COIL, SPOOK CHOKE	3.3UH
L723	1-410-474-41	INDUCTOR	22UH
L724	1-410-474-41	INDUCTOR	22UH

TRANSISTOR

Q721	8-729-801-97	TRANSISTOR 2SC3503
Q722	8-729-801-97	TRANSISTOR 2SC3503
Q723	8-729-801-87	TRANSISTOR 2SA1381-D
Q724	8-729-801-87	TRANSISTOR 2SA1381-D

RESISTOR

R721	1-249-405-11	CARBON	100	5%	1/4W	F
R723	⚠1-249-405-91	CARBON	100	5%	1/4W	F
R724	1-215-926-00	METAL OXIDE	33K	5%	3W	F
R725	1-215-431-00	METAL	2.7K	1%	1/6W	
R726	1-216-510-11	METAL OXIDE	8.2K	5%	5W	F
R727	1-247-700-11	CARBON	100	5%	1/4W	F
R728	1-202-561-00	SOLID	330	10%	1/2W	
R729	1-202-828-11	SOLID	6.8K	10%	1/2W	
R730	1-202-847-00	SOLID	560K	10%	1/2W	
R731	1-202-847-00	SOLID	560K	10%	1/2W	
R732	1-202-814-11	SOLID	33K	10%	1/2W	
R733	⚠1-249-421-91	CARBON	2.2K	5%	1/4W	F

SPARK GAP

SG721	1-519-063-XX	DISCHARGING GAP

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*1-621-070-11 CB BOARD
****

1-526-812-11	SOCKET, PICTURE TUBE
1-556-880-51	LEAD ASSY, HIGH-VOLTAGE
4-371-837-01	SPACER (TO-126), BN
*4-383-071-01	BRACKET, TRANSISTOR

CAPACITOR

C741	1-101-006-00	CERAMIC	0.047MF		50V
C742	1-136-165-00	FILM	0.1MF	5%	50V
C744	⚠1-126-174-51	ELECT	10MF	20%	350V
C745	1-102-050-00	CERAMIC	0.01MF		500V
C746	1-162-115-00	CERAMIC	330PF	10%	2KV
C747	1-162-115-00	CERAMIC	330PF	10%	2KV
C748	1-108-833-00	MYLAR	0.0047MF	10%	50V
C749	1-101-006-00	CERAMIC	0.047MF		50V

CONNECTOR

CB1	*1-508-784-00	1P PLUG
CB2	*1-508-786-00	2P PLUG (M)
CB3	*1-566-058-11	PIN, CONNECTOR 6P
CB4	*1-566-057-11	PIN, CONNECTOR 5P
CB5	*1-566-054-11	PIN, CONNECTOR 2P

DIODE

D741	8-719-911-19	DIODE 1SS119
D742	8-719-911-19	DIODE 1SS119
D743	8-719-911-19	DIODE 1SS119

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description				Remark
D744	8-719-911-19	DIODE 1SS119				
D745	8-719-911-19	DIODE 1SS119				
D746	8-719-911-19	DIODE 1SS119				
D747	8-719-110-36	DIODE RD13ES-B2				

COIL

L741	1-407-364-00	COIL, SPOOK CHOKE	3.3UH			
L742	1-407-364-00	COIL, SPOOK CHOKE	3.3UH			
L743	1-410-474-41	INDUCTOR	22UH			
L744	1-410-474-41	INDUCTOR	22UH			

TRANSISTOR

Q741	8-729-801-97	TRANSISTOR 2SC3503				
Q742	8-729-801-97	TRANSISTOR 2SC3503				
Q743	8-729-801-87	TRANSISTOR 2SA1381-D				
Q744	8-729-801-87	TRANSISTOR 2SA1381-D				

RESISTOR

R741	1-249-405-11	CARBON	100	5%	1/4W	F
R743	⚠1-249-405-91	CARBON	100	5%	1/4W	F
R744	1-215-926-00	METAL OXIDE	33K	5%	3W	F
R745	1-215-431-00	METAL	2.7K	1%	1/6W	
R746	1-216-510-11	METAL OXIDE	8.2K	5%	5W	F
R747	1-247-700-11	CARBON	100	5%	1/4W	F
R748	1-202-561-00	SOLID	330	10%	1/2W	
R749	1-202-828-11	SOLID	6.8K	10%	1/2W	
R750	1-202-847-00	SOLID	560K	10%	1/2W	
R751	1-202-847-00	SOLID	560K	10%	1/2W	
R752	1-202-814-11	SOLID	33K	10%	1/2W	
R753	⚠1-249-421-91	CARBON	2.2K	5%	1/4W	F

SPARK GAP

SG741	1-519-063-XX	DISCHARGING GAP				

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	*A-1340-919-A	D BOARD, COMPLETE *****************
	*1-535-615-11	TERMINAL (LAMP SOCKET)
	*4-378-621-01	RETAINER, TR

CAPACITOR

Ref.No.	Part No.	Description			Remark
C1	1-101-004-00	CERAMIC	0.01MF		50V
C2	1-123-333-00	ELECT	100MF	20%	25V
C3	1-123-333-00	ELECT	100MF	20%	25V
C4	1-123-333-00	ELECT	100MF	20%	16V
C5	1-123-333-00	ELECT	100MF	20%	16V
C6	1-102-947-00	CERAMIC	10PF	0.5PF	50V
C7	1-123-381-00	ELECT	2.2MF	20%	50V
C8	1-101-361-00	CERAMIC	150PF	5%	50V
C9	1-130-483-00	MYLAR	0.01MF	5%	50V
C10	1-130-495-00	MYLAR	0.1MF	5%	50V
C12	1-123-381-00	ELECT	2.2MF	20%	50V
C13	1-108-808-11	MYLAR	0.022MF	5%	50V
C14	1-123-356-00	ELECT	10MF	20%	16V
C15	1-126-103-11	ELECT	470MF	20%	16V
C16	1-101-006-00	CERAMIC	0.047MF		50V
C17	1-123-380-00	ELECT	1MF	20%	50V
C18	1-130-483-00	MYLAR	0.01MF	5%	50V
C19	1-130-868-00	FILM	0.0056MF	5%	50V
C20	1-123-380-00	ELECT	1MF	20%	50V
C21	1-123-369-00	ELECT	4.7MF	20%	25V
C22	1-123-356-00	ELECT	10MF	20%	16V
C23	1-126-103-11	ELECT	470MF	20%	16V
C24	1-106-361-00	MYLAR	0.0056MF	10%	100V
C25	1-123-380-00	ELECT	1MF	20%	50V
C26	1-108-812-11	MYLAR	0.047MF	5%	50V
C27	1-130-483-00	MYLAR	0.01MF	5%	50V
C28	1-108-808-11	MYLAR	0.022MF	5%	50V
C29	1-123-379-00	ELECT	0.47MF	20%	50V
C30	1-136-173-00	FILM	0.47MF	5%	50V
C31	1-108-812-11	MYLAR	0.047MF	5%	50V
C32	1-123-321-00	ELECT	220MF	20%	16V
C33	1-108-792-11	MYLAR	0.001MF	5%	50V
C34	1-101-004-00	CERAMIC	0.01MF		50V
C36	1-130-483-00	MYLAR	0.01MF	5%	50V
C37	1-131-373-00	TANTALUM	22MF	10%	16V
C38	1-124-963-11	ELECT	33MF	20%	16V
C39	1-130-495-00	MYLAR	0.1MF	5%	50V
C40	1-124-463-00	ELECT	0.1MF	20%	50V
C41	1-101-361-00	CERAMIC	150PF	5%	50V
C43	1-124-463-00	ELECT	0.1MF	20%	50V
C44	1-123-356-00	ELECT	10MF	20%	16V
C45	1-102-824-00	CERAMIC	470PF	5%	50V
C46	1-102-030-00	CERAMIC	330PF	10%	500V
C47	1-130-483-00	MYLAR	0.01MF	5%	50V
C48	1-101-004-00	CERAMIC	0.01MF		50V
C49	1-101-004-00	CERAMIC	0.01MF		50V
C50	1-123-369-00	ELECT	4.7MF	20%	25V
C51	1-123-661-00	ELECT	100MF	20%	6.3V
C52	1-123-661-00	ELECT	100MF	20%	6.3V
C53	1-126-157-11	ELECT	10MF	20%	16V
C54	1-101-004-00	CERAMIC	0.01MF		50V
C55	1-124-589-11	ELECT	47MF	20%	16V
C56	1-124-589-11	ELECT	47MF	20%	16V
C57	1-101-004-00	CERAMIC	0.01MF		50V
C58	1-123-661-00	ELECT	100MF	20%	6.3V
C59	1-123-661-00	ELECT	100MF	20%	6.3V
C60	1-126-157-11	ELECT	10MF	20%	16V
C61	1-126-157-11	ELECT	10MF	20%	16V
C62	1-126-157-11	ELECT	10MF	20%	16V
C63	1-124-589-11	ELECT	47MF	20%	16V
C64	1-124-589-11	ELECT	47MF	20%	16V
C65	1-101-004-00	CERAMIC	0.01MF		50V
C66	1-101-004-00	CERAMIC	0.01MF		50V
C67	1-123-321-00	ELECT	220MF	20%	16V
C68	1-123-321-00	ELECT	220MF	20%	16V
C69	1-123-333-00	ELECT	100MF	20%	16V
C70	1-123-333-00	ELECT	100MF	20%	16V
C72	1-136-161-00	FILM	0.047MF	5%	50V
C73	1-101-004-00	CERAMIC	0.01MF		50V
C74	1-101-004-00	CERAMIC	0.01MF		50V
C75	1-102-316-00	CERAMIC	15PF	5%	500V
C76	1-108-692-81	MYLAR	0.01MF	10%	200V
C77	1-108-700-11	MYLAR	0.047MF	10%	200V
C78	1-123-356-00	ELECT	10MF	20%	16V
C79	1-123-356-00	ELECT	10MF	20%	16V
C80	1-136-161-00	FILM	0.047MF	5%	50V
C81	1-136-161-00	FILM	0.047MF	5%	50V
C82	1-101-004-00	CERAMIC	0.01MF		50V
C83	1-101-004-00	CERAMIC	0.01MF		50V
C84	1-102-316-00	CERAMIC	15PF	5%	500V
C85	1-108-692-81	MYLAR	0.01MF	10%	200V
C86	1-102-316-00	CERAMIC	15PF	5%	500V
C87	1-108-692-81	MYLAR	0.01MF	10%	200V
C88	1-123-381-00	ELECT	2.2MF	20%	50V

D

Ref.No.	Part No.	Description	Remark
C89	1-124-284-00	ELECT 10MF 20% 16V	
C401	1-126-163-11	ELECT 4.7MF 20% 50V	
C402	1-126-163-11	ELECT 4.7MF 20% 50V	
C403	1-126-163-11	ELECT 4.7MF 20% 50V	
C404	1-126-163-11	ELECT 4.7MF 20% 50V	

DIODE

Ref.No.	Part No.	Description	Remark
D1	8-719-911-19	DIODE 1SS119	
D2	8-719-911-19	DIODE 1SS119	
D3	8-719-911-19	DIODE 1SS119	
D4	8-719-911-19	DIODE 1SS119	
D5	8-719-109-85	DIODE RD5.1ES-B2	
D6	8-719-911-19	DIODE 1SS119	
D7	8-719-911-19	DIODE 1SS119	
D8	8-719-911-19	DIODE 1SS119	
D9	8-719-911-19	DIODE 1SS119	
D10	8-719-911-19	DIODE 1SS119	
D11	8-719-911-19	DIODE 1SS119	
D12	8-719-911-19	DIODE 1SS119	
D13	8-719-110-36	DIODE RD13ES-B2	
D14	8-719-911-19	DIODE 1SS119	
D15	8-719-911-19	DIODE 1SS119	
D16	8-719-911-19	DIODE 1SS119	
D17	8-719-911-19	DIODE 1SS119	
D401	8-719-110-42	DIODE RD15ES-B3	
D402	8-719-110-36	DIODE RD13ES-B2	
D403	8-719-110-36	DIODE RD13ES-B2	
D404	8-719-110-36	DIODE RD13ES-B2	
D405	8-719-110-36	DIODE RD13ES-B2	
D406	8-719-110-36	DIODE RD13ES-B2	
D407	8-719-110-36	DIODE RD13ES-B2	
D408	8-719-110-36	DIODE RD13ES-B2	
D409	8-719-110-36	DIODE RD13ES-B2	
D410	8-719-110-36	DIODE RD13ES-B2	
D411	8-719-110-36	DIODE RD13ES-B2	
D412	8-719-110-36	DIODE RD13ES-B2	

CONNECTOR

Ref.No.	Part No.	Description	Remark
D1	*1-566-055-11	PIN, CONNECTOR 3P	
D2	*1-566-055-11	PIN, CONNECTOR 3P	
D3	*1-566-055-11	PIN, CONNECTOR 3P	
D4	*1-566-055-11	PIN, CONNECTOR 3P	
D5	*1-566-055-11	PIN, CONNECTOR 3P	
D6	*1-566-055-11	PIN, CONNECTOR 3P	
D7	*1-566-056-11	PIN, CONNECTOR 4P	
D8	*1-566-056-11	PIN, CONNECTOR 4P	
D9	*1-566-056-11	PIN, CONNECTOR 4P	
D10	*1-566-059-11	PIN, CONNECTOR 7P	
D11	*1-566-054-11	PIN, CONNECTOR 2P	
D12	*1-566-054-11	PIN, CONNECTOR 2P	
D13	*1-566-058-11	PIN, CONNECTOR 6P	
D14	*1-566-055-11	PIN, CONNECTOR 3P	
D15	*1-566-060-11	PIN, CONNECTOR 8P	
D16	*1-566-054-11	PIN, CONNECTOR 2P	
D17	*1-566-060-11	PIN, CONNECTOR 8P	
D18	*1-566-058-11	PIN, CONNECTOR 6P	
D19	*1-566-054-11	PIN, CONNECTOR 2P	
D20	*1-566-064-11	PIN, CONNECTOR 12P	
D21	*1-566-060-11	PIN, CONNECTOR 8P	
D22	*1-566-055-11	PIN, CONNECTOR 3P	
D23	*1-566-060-11	PIN, CONNECTOR 8P	
D24	*1-566-060-11	PIN, CONNECTOR 8P	
D25	*1-566-054-11	PIN, CONNECTOR 2P	

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-100-60	IC UPC1377C	
IC2	8-749-911-21	IC BX1121	
IC3	8-759-340-53	IC HD14053BP	
IC4	8-759-170-12	IC UPC78M12H	
IC5	8-759-700-24	IC NJM79M12A	
IC6	8-759-178-12	IC UPC78L12	
IC7	8-759-178-12	IC UPC78L12	
IC8	8-759-600-02	IC M5218L	
IC9	8-741-112-20	IC BX1122	
IC10	8-759-240-52	IC TC4052BP	
IC11	8-759-600-02	IC M5218L	
IC12	8-759-600-02	IC M5218L	
IC13	8-759-600-02	IC M5218L	
IC14	8-759-111-69	IC UPC1037HA	
IC15	8-759-111-69	IC UPC1037HA	
IC16	8-759-170-08	IC UPC78M08H	
IC17	8-759-700-22	IC NJM79M08A	
IC18	8-759-145-58	IC UPC4558C	
IC19	8-759-145-58	IC UPC4558C	
IC401	8-759-340-53	IC HD14053BP	
IC402	8-759-340-53	IC HD14053BP	
IC403	8-759-340-53	IC HD14053BP	

PILOT LAMP

Ref.No.	Part No.	Description	Remark
PL1	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
PL2	1-518-590-11	LAMP, PILOT (WITH HOLDER)	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q1	8-729-178-54	TRANSISTOR 2SC2785	
Q2	8-729-178-54	TRANSISTOR 2SC2785	
Q3	8-729-178-54	TRANSISTOR 2SC2785	
Q4	8-729-178-54	TRANSISTOR 2SC2785	
Q5	8-729-178-54	TRANSISTOR 2SC2785	
Q6	8-729-178-54	TRANSISTOR 2SC2785	
Q7	8-729-238-32	TRANSISTOR 2SC2383	
Q8	8-729-201-78	TRANSISTOR 2SD1406	
Q9	8-729-202-02	TRANSISTOR 2SB1015	
Q10	8-729-238-32	TRANSISTOR 2SC2383	
Q11	8-729-201-78	TRANSISTOR 2SD1406	
Q12	8-729-202-02	TRANSISTOR 2SB1015	
Q13	8-729-238-32	TRANSISTOR 2SC2383	
Q14	8-729-201-78	TRANSISTOR 2SD1406	
Q15	8-729-202-02	TRANSISTOR 2SB1015	
Q16	8-729-178-54	TRANSISTOR 2SC2785	
Q17	8-729-178-54	TRANSISTOR 2SC2785	
Q18	8-729-178-54	TRANSISTOR 2SC2785	
Q19	8-729-178-54	TRANSISTOR 2SC2785	
Q20	8-729-117-54	TRANSISTOR 2SA1175	

RESISTOR

Ref.No.	Part No.	Description	Remark
R1	1-215-457-00	METAL 33K 1% 1/6W	
R2	1-215-467-00	METAL 82K 1% 1/6W	
R3	1-247-881-00	CARBON 120K 5% 1/4W	
R4	1-249-417-11	CARBON 1K 5% 1/4W	
R5	1-249-423-11	CARBON 3.3K 5% 1/4W	
R6	1-249-434-11	CARBON 27K 5% 1/4W	
R7	1-249-425-11	CARBON 4.7K 5% 1/4W	
R8	1-249-421-11	CARBON 2.2K 5% 1/4W	
R9	1-215-447-00	METAL 12K 1% 1/6W	

Ref.No.	Part No.	Description				Remark
R10	1-249-417-11	CARBON	1K	5%	1/4W	
R11	1-215-445-00	METAL	10K	1%	1/6W	
R12	1-215-447-00	METAL	12K	1%	1/6W	
R13	1-249-417-11	CARBON	1K	5%	1/4W	
R14	1-249-441-11	CARBON	100K	5%	1/4W	
R15	1-215-447-00	METAL	12K	1%	1/6W	
R16	1-247-903-00	CARBON	1M	5%	1/4W	
R17	1-247-903-00	CARBON	1M	5%	1/4W	
R18	1-249-441-11	CARBON	100K	5%	1/4W	
R19	1-249-405-11	CARBON	100	5%	1/4W	
R20	1-249-417-11	CARBON	1K	5%	1/4W	
R21	1-247-895-00	CARBON	470K	5%	1/4W	
R22	1-249-417-11	CARBON	1K	5%	1/4W	
R23	1-215-467-00	METAL	82K	1%	1/6W	
R24	1-215-467-00	METAL	82K	1%	1/6W	
R25	1-249-423-11	CARBON	3.3K	5%	1/4W	
R26	1-249-433-11	CARBON	22K	5%	1/4W	
R27	1-249-431-11	CARBON	15K	5%	1/4W	
R28	1-249-428-11	CARBON	8.2K	5%	1/4W	
R29	1-249-409-11	CARBON	220	5%	1/4W	
R30	1-249-411-11	CARBON	330	5%	1/4W	
R31	1-249-417-11	CARBON	1K	5%	1/4W	
R32	1-249-417-11	CARBON	1K	5%	1/4W	
R33	1-215-458-00	METAL	36K	1%	1/6W	
R34	1-249-435-11	CARBON	33K	5%	1/4W	
R35	1-249-435-11	CARBON	33K	5%	1/4W	
R36	1-249-435-11	CARBON	33K	5%	1/4W	
R37	1-249-421-11	CARBON	2.2K	5%	1/4W	
R38	1-249-424-11	CARBON	3.9K	5%	1/4W	
R39	1-249-418-11	CARBON	1.2K	5%	1/4W	
R40	1-249-438-11	CARBON	56K	5%	1/4W	
R41	1-215-446-00	METAL	11K	1%	1/6W	
R42	1-215-447-00	METAL	12K	1%	1/6W	
R43	1-215-463-00	METAL	56K	1%	1/6W	
R44	1-215-439-00	METAL	5.6K	1%	1/6W	
R45	1-215-439-00	METAL	5.6K	1%	1/6W	
R46	1-215-449-00	METAL	15K	1%	1/6W	
R47	1-249-441-11	CARBON	100K	5%	1/4W	
R48	1-249-433-11	CARBON	22K	5%	1/4W	
R49	1-249-417-11	CARBON	1K	5%	1/4W	
R50	1-249-428-11	CARBON	8.2K	5%	1/4W	
R51	1-249-405-11	CARBON	100	5%	1/4W	
R52	1-249-408-11	CARBON	180	5%	1/4W	
R53	1-249-427-11	CARBON	6.8K	5%	1/4W	
R54	1-215-415-00	METAL	560	1%	1/6W	
R55	1-215-415-00	METAL	560	1%	1/6W	
R56	1-249-405-11	CARBON	100	5%	1/4W	
R57	1-215-413-00	METAL	470	1%	1/6W	
R58	1-249-429-11	CARBON	10K	5%	1/4W	
R59	1-214-971-00	METAL	2M	1%	1/4W	
R60	1-215-467-00	METAL	82K	1%	1/6W	
R62	1-215-439-00	METAL	5.6K	1%	1/6W	
R63	1-215-431-00	METAL	2.7K	1%	1/6W	
R64	1-249-417-11	CARBON	1K	5%	1/4W	
R65	1-249-429-11	CARBON	10K	5%	1/4W	
R66	1-249-417-11	CARBON	1K	5%	1/4W	
R67	1-249-429-11	CARBON	10K	5%	1/4W	
R68	1-249-429-11	CARBON	10K	5%	1/4W	
R69	1-215-457-00	METAL	33K	1%	1/6W	
R70	1-215-421-00	METAL	1K	1%	1/6W	
R71	1-249-429-11	CARBON	10K	5%	1/4W	
R72	1-249-429-11	CARBON	10K	5%	1/4W	
R73	1-249-429-11	CARBON	10K	5%	1/4W	
R74	1-249-411-11	CARBON	330	5%	1/4W	
R75	1-249-411-11	CARBON	330	5%	1/4W	

Ref.No.	Part No.	Description				Remark
R76	1-249-429-11	CARBON	10K	5%	1/4W	
R77	1-215-471-00	METAL	120K	1%	1/6W	
R78	1-215-443-00	METAL	8.2K	1%	1/6W	
R79	1-215-429-00	METAL	2.2K	1%	1/6W	
R80	1-215-437-00	METAL	4.7K	1%	1/6W	
R81	1-215-443-00	METAL	8.2K	1%	1/6W	
R82	1-215-453-00	METAL	22K	1%	1/6W	
R83	1-215-429-00	METAL	2.2K	1%	1/6W	
R84	1-215-437-00	METAL	4.7K	1%	1/6W	
R85	1-215-463-00	METAL	56K	1%	1/6W	
R86	1-215-445-00	METAL	10K	1%	1/6W	
R87	1-215-445-00	METAL	10K	1%	1/6W	
R88	1-249-429-11	CARBON	10K	5%	1/4W	
R89	1-215-445-00	METAL	10K	1%	1/6W	
R90	1-215-445-00	METAL	10K	1%	1/6W	
R91	1-249-429-11	CARBON	10K	5%	1/4W	
R92	1-215-449-00	METAL	15K	1%	1/6W	
R93	1-215-449-00	METAL	15K	1%	1/6W	
R94	1-215-461-00	METAL	47K	1%	1/6W	
R95	1-215-461-00	METAL	47K	1%	1/6W	
R96	1-215-451-00	METAL	18K	1%	1/6W	
R97	1-215-413-00	METAL	470	1%	1/6W	
R98	1-215-429-00	METAL	2.2K	1%	1/6W	
R99	1-215-417-00	METAL	680	1%	1/6W	
R100	1-247-887-00	CARBON	220K	5%	1/4W	
R101	1-249-429-11	CARBON	10K	5%	1/4W	
R102	1-215-451-00	METAL	18K	1%	1/6W	
R103	1-215-413-00	METAL	470	1%	1/6W	
R104	1-215-429-00	METAL	2.2K	1%	1/6W	
R105	1-215-417-00	METAL	680	1%	1/6W	
R106	1-247-887-00	CARBON	220K	5%	1/4W	
R107	1-247-104-00	CARBON	75	5%	1/4W	
R108	1-249-429-11	CARBON	10K	5%	1/4W	
R109	1-215-417-00	METAL	680	1%	1/6W	
R110	1-249-405-11	CARBON	100	5%	1/4W	
R111	1-215-415-00	METAL	560	1%	1/6W	
R112	1-249-429-11	CARBON	10K	5%	1/4W	
R113	1-215-445-00	METAL	10K	1%	1/6W	
R114	1-215-457-00	METAL	33K	1%	1/6W	
R115	1-215-457-00	METAL	33K	1%	1/6W	
R116	1-215-457-00	METAL	33K	1%	1/6W	
R117	1-215-459-00	METAL	39K	1%	1/6W	
R118	1-215-459-00	METAL	39K	1%	1/6W	
R119	1-215-459-00	METAL	39K	1%	1/6W	
R120	1-215-479-00	METAL	270K	1%	1/6W	
R121	1-215-469-00	METAL	100K	1%	1/6W	
R122	1-215-479-00	METAL	270K	1%	1/6W	
R123	1-215-469-00	METAL	100K	1%	1/6W	
R124	1-215-427-00	METAL	1.8K	1%	1/6W	
R125	1-215-468-00	METAL	91K	1%	1/6W	
R126	1-215-443-00	METAL	8.2K	1%	1/6W	
R127	1-215-469-00	METAL	100K	1%	1/6W	
R128	1-215-467-00	METAL	82K	1%	1/6W	
R129	1-215-451-00	METAL	18K	1%	1/6W	
R130	1-215-461-00	METAL	47K	1%	1/6W	
R131	1-249-417-11	CARBON	1K	5%	1/4W	
R132	1-215-459-00	METAL	39K	1%	1/6W	
R134	1-215-449-00	METAL	15K	1%	1/6W	
R135	1-215-465-00	METAL	68K	1%	1/6W	
R136	1-215-451-00	METAL	18K	1%	1/6W	
R137	1-215-471-00	METAL	120K	1%	1/6W	
R138	1-215-463-00	METAL	56K	1%	1/6W	
R139	1-215-477-00	METAL	220K	1%	1/6W	
R140	1-215-469-00	METAL	100K	1%	1/6W	
R141	1-215-473-00	METAL	150K	1%	1/6W	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

D

Ref.No.	Part No.	Description				Remark
R142	1-215-469-00	METAL	100K	1%	1/6W	
R143	1-215-469-00	METAL	100K	1%	1/6W	
R144	1-215-469-00	METAL	100K	1%	1/6W	
R145	1-215-469-00	METAL	100K	1%	1/6W	
R146	1-215-455-00	METAL	27K	1%	1/6W	
R147	1-215-461-00	METAL	47K	1%	1/6W	
R148	1-215-463-00	METAL	56K	1%	1/6W	
R149	1-215-449-00	METAL	15K	1%	1/6W	
R150	1-215-457-00	METAL	33K	1%	1/6W	
R151	1-215-461-00	METAL	47K	1%	1/6W	
R152	1-215-461-00	METAL	47K	1%	1/6W	
R153	1-215-461-00	METAL	47K	1%	1/6W	
R154	1-215-461-00	METAL	47K	1%	1/6W	
R155	1-215-471-00	METAL	120K	1%	1/6W	
R156	1-215-463-00	METAL	56K	1%	1/6W	
R157	1-215-477-00	METAL	220K	1%	1/6W	
R158	1-215-469-00	METAL	100K	1%	1/6W	
R159	1-215-473-00	METAL	150K	1%	1/6W	
R160	1-215-469-00	METAL	100K	1%	1/6W	
R161	1-215-469-00	METAL	100K	1%	1/6W	
R162	1-215-469-00	METAL	100K	1%	1/6W	
R163	1-215-469-00	METAL	100K	1%	1/6W	
R164	1-215-455-00	METAL	27K	1%	1/6W	
R165	1-215-461-00	METAL	47K	1%	1/6W	
R166	1-215-463-00	METAL	56K	1%	1/6W	
R167	1-215-449-00	METAL	15K	1%	1/6W	
R168	1-215-457-00	METAL	33K	1%	1/6W	
R169	1-215-461-00	METAL	47K	1%	1/6W	
R170	1-215-461-00	METAL	47K	1%	1/6W	
R171	1-215-461-00	METAL	47K	1%	1/6W	
R172	1-215-461-00	METAL	47K	1%	1/6W	
R173	1-215-441-00	METAL	6.8K	1%	1/6W	
R174	1-215-425-00	METAL	1.5K	1%	1/6W	
R175	1-215-425-00	METAL	1.5K	1%	1/6W	
R176	1-215-425-00	METAL	1.5K	1%	1/6W	
R177	1-215-441-00	METAL	6.8K	1%	1/6W	
R178	1-215-445-00	METAL	10K	1%	1/6W	
R179	1-215-457-00	METAL	33K	1%	1/6W	
R180	1-249-429-11	CARBON	10K	5%	1/4W	
R181	1-249-405-11	CARBON	100	5%	1/4W	
R182	1-249-405-11	CARBON	100	5%	1/4W	
R183	1-215-445-00	METAL	10K	1%	1/6W	
R184	1-215-417-00	METAL	680	1%	1/6W	
R185	1-249-393-11	CARBON	10	5%	1/4W	
R186	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R187	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R188	1-215-396-00	METAL	91	1%	1/6W	
R189	1-215-375-00	METAL	12	1%	1/6W	
R190	1-215-375-00	METAL	12	1%	1/6W	
R191	1-215-375-00	METAL	12	1%	1/6W	
R192	1-215-375-00	METAL	12	1%	1/6W	
R193	1-215-375-00	METAL	12	1%	1/6W	
R194	1-215-441-00	METAL	6.8K	1%	1/6W	
R195	1-249-429-11	CARBON	10K	5%	1/4W	
R196	1-215-441-00	METAL	6.8K	1%	1/6W	
R197	1-249-429-11	CARBON	10K	5%	1/4W	
R198	1-249-405-11	CARBON	100	5%	1/4W	
R199	1-249-405-11	CARBON	100	5%	1/4W	
R200	1-215-445-00	METAL	10K	1%	1/6W	
R201	1-215-417-00	METAL	680	1%	1/6W	
R202	1-249-393-11	CARBON	10	5%	1/4W	
R203	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R204	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R205	1-215-391-00	METAL	56	1%	1/6W	
R206	1-215-375-00	METAL	12	1%	1/6W	
R207	1-215-375-00	METAL	12	1%	1/6W	
R208	1-215-375-00	METAL	12	1%	1/6W	
R209	1-215-375-00	METAL	12	1%	1/6W	
R210	1-215-375-00	METAL	12	1%	1/6W	
R211	1-215-445-00	METAL	10K	1%	1/6W	
R212	1-215-417-00	METAL	680	1%	1/6W	
R213	1-249-393-11	CARBON	10	5%	1/4W	
R214	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R215	1-215-875-11	METAL OXIDE	10K	5%	1W	F
R217	1-215-374-00	METAL	11	1%	1/6W	
R218	1-215-375-00	METAL	12	1%	1/6W	
R219	1-215-375-00	METAL	12	1%	1/6W	
R220	1-215-375-00	METAL	12	1%	1/6W	
R221	1-215-375-00	METAL	12	1%	1/6W	
R222	1-215-419-00	METAL	820	1%	1/6W	
R223	1-215-447-00	METAL	12K	1%	1/6W	
R224	1-214-802-00	METAL	2.7	1%	1/2W	
R225	1-214-804-11	METAL	3.3	1%	1/2W	
R226	1-214-802-00	METAL	2.7	1%	1/2W	
R227	1-214-804-11	METAL	3.3	1%	1/2W	
R228	1-214-802-00	METAL	2.7	1%	1/2W	
R229	1-214-804-11	METAL	3.3	1%	1/2W	
R230	1-215-469-00	METAL	100K	1%	1/6W	
R231	1-215-469-00	METAL	100K	1%	1/6W	
R232	1-249-429-11	CARBON	10K	5%	1/4W	
R233	1-247-901-11	CARBON	820K	5%	1/4W	
R234	1-247-901-11	CARBON	820K	5%	1/4W	
R235	1-247-897-11	CARBON	560K	5%	1/4W	
R236	1-247-897-11	CARBON	560K	5%	1/4W	
R237	1-249-441-11	CARBON	100K	5%	1/4W	
R238	1-249-433-11	CARBON	22K	5%	1/4W	
R239	1-249-433-11	CARBON	22K	5%	1/4W	
R240	1-249-440-11	CARBON	82K	5%	1/4W	
R241	1-215-483-00	METAL	390K	1%	1/6W	
R242	1-215-473-00	METAL	150K	1%	1/6W	
R243	1-215-457-00	METAL	33K	1%	1/6W	
R244	1-215-457-00	METAL	33K	1%	1/6W	
R245	1-215-465-00	METAL	68K	1%	1/6W	
R246	1-215-453-00	METAL	22K	1%	1/6W	
R247	1-215-457-00	METAL	33K	1%	1/6W	
R248	1-215-469-00	METAL	100K	1%	1/6W	
R249	1-249-416-11	CARBON	820	5%	1/4W	
R250	1-249-417-11	CARBON	1K	5%	1/4W	
R251	1-249-405-11	CARBON	100	5%	1/4W	
R252	1-215-463-00	METAL	56K	1%	1/6W	
R253	1-215-461-00	METAL	47K	1%	1/6W	
R254	1-249-413-11	CARBON	470	5%	1/4W	
R255	1-249-429-11	CARBON	10K	5%	1/4W	
R256	1-249-423-11	CARBON	3.3K	5%	1/4W	
R257	1-249-423-11	CARBON	3.3K	5%	1/4W	
R258	1-249-433-11	CARBON	22K	5%	1/4W	
R259	1-249-429-11	CARBON	10K	5%	1/4W	
R260	1-249-433-11	CARBON	22K	5%	1/4W	
R261	1-249-433-11	CARBON	22K	5%	1/4W	
R262	1-249-441-11	CARBON	100K	5%	1/4W	
R263	⚠1-215-910-51	METAL OXIDE	68	5%	3W	F
R264	⚠1-215-910-51	METAL OXIDE	68	5%	3W	F
R265	⚠1-215-910-51	METAL OXIDE	68	5%	3W	F
R266	⚠1-215-910-51	METAL OXIDE	68	5%	3W	F
R401	1-249-423-11	CARBON	3.3K	5%	1/4W	
R402	1-249-417-11	CARBON	1K	5%	1/4W	
R403	1-249-417-11	CARBON	1K	5%	1/4W	
R404	1-249-417-11	CARBON	1K	5%	1/4W	
R405	1-249-417-11	CARBON	1K	5%	1/4W	
R406	1-249-417-11	CARBON	1K	5%	1/4W	

Ref.No.	Part No.	Description	Remark
R407	1-249-417-11	CARBON 1K 5% 1/4W	
R408	1-249-417-11	CARBON 1K 5% 1/4W	
R409	1-249-417-11	CARBON 1K 5% 1/4W	
R410	1-249-417-11	CARBON 1K 5% 1/4W	
R411	1-249-417-11	CARBON 1K 5% 1/4W	
R412	1-249-405-11	CARBON 100 5% 1/4W	
R413	1-249-417-11	CARBON 1K 5% 1/4W	
R414	1-249-405-11	CARBON 100 5% 1/4W	
R415	1-249-417-11	CARBON 1K 5% 1/4W	
R416	1-249-405-11	CARBON 100 5% 1/4W	
R417	1-249-417-11	CARBON 1K 5% 1/4W	
R418	1-249-405-11	CARBON 100 5% 1/4W	
R419	1-249-405-11	CARBON 100 5% 1/4W	
R420	1-249-405-11	CARBON 100 5% 1/4W	
R421	1-249-417-11	CARBON 1K 5% 1/4W	
R422	1-249-417-11	CARBON 1K 5% 1/4W	
R423	1-249-417-11	CARBON 1K 5% 1/4W	
R424	1-249-417-11	CARBON 1K 5% 1/4W	
R425	1-249-417-11	CARBON 1K 5% 1/4W	
R426	1-249-417-11	CARBON 1K 5% 1/4W	
R427	1-249-417-11	CARBON 1K 5% 1/4W	
R428	1-249-417-11	CARBON 1K 5% 1/4W	
R429	1-249-417-11	CARBON 1K 5% 1/4W	
R430	1-249-435-11	CARBON 33K 5% 1/4W	
R431	1-215-471-00	METAL 120K 1% 1/6W	
R432	1-215-455-00	METAL 27K 1% 1/6W	
R433	1-215-477-00	METAL 220K 1% 1/6W	
R434	1-215-475-00	METAL 180K 1% 1/6W	
R435	1-215-455-00	METAL 27K 1% 1/6W	
R436	1-215-468-00	METAL 91K 1% 1/6W	
R437	1-215-471-00	METAL 120K 1% 1/6W	
R438	1-215-452-00	METAL 20K 1% 1/6W	
R439	1-215-465-00	METAL 68K 1% 1/6W	
R500	1-215-491-00	METAL 820K 1% 1/6W	

VARIABLE RESISTOR

Ref.No.	Part No.	Description	Remark
RV1	1-224-251-XX	RES, ADJ, METAL GLAZE 4.7K	
RV2	1-224-251-XX	RES, ADJ, METAL GLAZE 4.7K	
RV3	1-230-633-41	RES, ADJ, CARBON 47K	
RV4	1-230-633-41	RES, ADJ, CARBON 47K	
RV5	1-230-630-11	RES, ADJ, CARBON 10K	
RV6	1-230-630-11	RES, ADJ, CARBON 10K	
RV7	1-230-630-11	RES, ADJ, CARBON 10K	
RV8	1-230-630-11	RES, ADJ, CARBON 10K	
RV9	1-230-630-11	RES, ADJ, CARBON 10K	
RV10	1-230-630-11	RES, ADJ, CARBON 10K	
RV11	1-230-630-11	RES, ADJ, CARBON 10K	
RV12	1-230-630-11	RES, ADJ, CARBON 10K	
RV13	1-230-630-11	RES, ADJ, CARBON 10K	
RV14	1-230-630-11	RES, ADJ, CARBON 10K	
RV15	1-230-630-11	RES, ADJ, CARBON 10K	
RV16	1-230-630-11	RES, ADJ, CARBON 10K	
RV17	1-230-630-11	RES, ADJ, CARBON 10K	
RV18	1-230-630-11	RES, ADJ, CARBON 10K	
RV19	1-230-630-11	RES, ADJ, CARBON 10K	
RV20	1-230-630-11	RES, ADJ, CARBON 10K	
RV21	1-230-630-11	RES, ADJ, CARBON 10K	
RV22	1-230-630-11	RES, ADJ, CARBON 10K	
RV23	1-230-630-11	RES, ADJ, CARBON 10K	
RV24	1-230-630-11	RES, ADJ, CARBON 10K	
RV25	1-230-630-11	RES, ADJ, CARBON 10K	
RV26	1-230-630-11	RES, ADJ, CARBON 10K	
RV27	1-230-630-11	RES, ADJ, CARBON 10K	
RV28	1-230-630-11	RES, ADJ, CARBON 10K	

Ref.No.	Part No.	Description	Remark
RV29	1-230-630-11	RES, ADJ, CARBON 10K	
RV30	1-230-630-11	RES, ADJ, CARBON 10K	
RV31	1-230-630-11	RES, ADJ, CARBON 10K	
RV32	1-230-630-11	RES, ADJ, CARBON 10K	
RV33	1-230-630-11	RES, ADJ, CARBON 10K	
RV34	1-230-630-11	RES, ADJ, CARBON 10K	
RV35	1-230-630-11	RES, ADJ, CARBON 10K	
RV36	1-230-630-11	RES, ADJ, CARBON 10K	
RV37	1-230-630-11	RES, ADJ, CARBON 10K	
RV38	1-230-630-11	RES, ADJ, CARBON 10K	
RV39	1-230-630-11	RES, ADJ, CARBON 10K	
RV40	1-230-630-11	RES, ADJ, CARBON 10K	
RV41	1-230-630-11	RES, ADJ, CARBON 10K	
RV42	1-230-630-11	RES, ADJ, CARBON 10K	
RV43	1-230-630-11	RES, ADJ, CARBON 10K	
RV44	1-230-630-11	RES, ADJ, CARBON 10K	
RV45	1-230-630-11	RES, ADJ, CARBON 10K	
RV46	1-230-630-11	RES, ADJ, CARBON 10K	
RV47	1-230-630-11	RES, ADJ, CARBON 10K	
RV48	1-230-630-11	RES, ADJ, CARBON 10K	
RV49	1-230-630-11	RES, ADJ, CARBON 10K	
RV50	1-230-630-11	RES, ADJ, CARBON 10K	
RV51	1-230-630-11	RES, ADJ, CARBON 10K	
RV401	1-228-938-00	RES, VAR, CARBON 20K	
RV402	1-228-938-00	RES, VAR, CARBON 20K	
RV403	1-228-937-00	RES, VAR, CARBON 20K	
RV404	1-228-937-00	RES, VAR, CARBON 20K	
RV405	1-228-937-00	RES, VAR, CARBON 20K	
RV406	1-228-938-00	RES, VAR, CARBON 20K	

SWITCH

Ref.No.	Part No.	Description	Remark
S1	1-553-755-00	SWITCH, SLIDE	
S2	1-553-755-00	SWITCH, SLIDE	
S3	1-553-755-00	SWITCH, SLIDE	
S4	1-553-755-00	SWITCH, SLIDE	
S5	1-553-755-00	SWITCH, SLIDE	
S6	1-553-755-00	SWITCH, SLIDE	
S7	1-553-755-00	SWITCH, SLIDE	
S8	1-553-716-00	SWITCH, SLIDE	
S9	1-553-716-00	SWITCH, SLIDE	
S10	1-553-716-00	SWITCH, SLIDE	
S11	1-553-716-00	SWITCH, SLIDE	
S12	1-553-716-00	SWITCH, SLIDE	
S13	1-552-437-00	SWITCH, LEVER	
S401	1-552-737-00	SWITCH, PUSH	
S402	1-554-499-00	SWITCH, PUSH (2 KEY)	
S403	1-516-970-00	SWITCH, SLIDE	

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*1-621-059-11 DB BOARD
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CAPACITOR

Ref.No.	Part No.	Description	Remark
C1	1-161-265-00	CERAMIC 33PF 5% 50V	
C2	1-161-265-00	CERAMIC 33PF 5% 50V	
C3	1-161-319-00	CERAMIC 470PF 10% 50V	
C4	1-161-319-00	CERAMIC 470PF 10% 50V	

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-106-41	IC UPC4570C	

DB **DY** **E**

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q1	8-729-205-96	TRANSISTOR 2SC3668	
Q2	8-729-205-95	TRANSISTOR 2SA1428-Y	
Q3	8-729-205-96	TRANSISTOR 2SC3668	
Q4	8-729-205-95	TRANSISTOR 2SA1428-Y	

RESISTOR

Ref.No.	Part No.	Description	Remark
R1	1-215-453-00	METAL 22K 1% 1/6W	
R2	1-215-453-00	METAL 22K 1% 1/6W	
R3	1-249-411-11	CARBON 330 5% 1/4W	
R4	1-249-411-11	CARBON 330 5% 1/4W	
R5	1-247-705-11	CARBON 270 5% 1/4W	
R6	1-247-705-11	CARBON 270 5% 1/4W	

CONNECTOR

Ref.No.	Part No.	Description	Remark
W1	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P	
W2	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P	

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*1-621-053-11 DY BOARD
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CAPACITOR

Ref.No.	Part No.	Description	Remark
C901	1-102-327-00	CERAMIC 330PF 15% 1.5KV	
C902	1-102-327-00	CERAMIC 330PF 15% 1.5KV	

CONNECTOR

Ref.No.	Part No.	Description	Remark
DY1	*1-566-041-11	PIN, CONNECTOR 2P	
DY2	*1-566-041-11	PIN, CONNECTOR 2P	

RESISTOR

Ref.No.	Part No.	Description	Remark
R901	⚠1-202-822-51	SOLID 2.2K 10% 1/2W	
R902	⚠1-202-822-51	SOLID 2.2K 10% 1/2W	

SPARK GAP

Ref.No.	Part No.	Description	Remark
SG901	1-519-063-XX	DISCHARGING GAP	
SG902	1-519-063-XX	DISCHARGING GAP	

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*A-1340-922-A E BOARD, COMPLETE
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4-383-022-01 SPACER, MICA

CAPACITOR

Ref.No.	Part No.	Description	Remark
C1	1-123-933-00	ELECT 10MF 20% 160V	
C2	1-123-379-00	ELECT 0.47MF 20% 50V	
C3	1-102-106-00	CERAMIC 100PF 10% 50V	
C4	1-102-030-00	CERAMIC 330PF 10% 500V	
C5	1-102-106-00	MYLAR 0.047MF 10% 200V	
C6	1-102-030-00	CERAMIC 330PF 10% 500V	
C7	1-108-700-11	MYLAR 0.047MF 10% 200V	
C8	1-123-024-00	ELECT 33MF 160V	
C9	1-136-113-00	FILM 2MF 5% 200V	
C10	1-136-113-00	FILM 2MF 5% 200V	
C11	1-130-706-00	FILM 0.008MF 3% 1.6KV	
C12	1-124-662-11	ELECT 220MF 20% 50V	
C13	1-124-662-11	ELECT 220MF 20% 50V	
C14	1-124-662-11	ELECT 220MF 20% 50V	
C15	1-101-004-00	CERAMIC 0.01MF 50V	
C16	1-123-380-00	ELECT 1MF 20% 50V	
C17	1-123-356-00	ELECT 10MF 20% 25V	
C18	1-124-589-11	ELECT 47MF 20% 16V	
C19	1-108-692-81	MYLAR 0.01MF 10% 200V	
C20	1-136-153-00	FILM 0.01MF 5% 50V	
C21	1-136-153-00	FILM 0.01MF 5% 50V	
C24	1-101-006-00	CERAMIC 0.047MF 50V	
C25	1-123-333-00	ELECT 100MF 20% 16V	
C26	1-123-333-00	ELECT 100MF 20% 16V	
C27	1-101-006-00	CERAMIC 0.047MF 50V	
C28	1-101-006-00	CERAMIC 0.047MF 50V	
C29	1-123-356-00	ELECT 10MF 20% 16V	
C30	1-123-356-00	ELECT 10MF 20% 16V	
C31	1-101-006-00	CERAMIC 0.047MF 50V	
C32	1-123-356-00	ELECT 10MF 20% 25V	
C33	1-123-333-00	ELECT 100MF 20% 16V	
C34	1-108-704-11	MYLAR 0.1MF 10% 200V	
C35	1-102-125-00	CERAMIC 0.0047MF 10% 50V	

DIODE

Ref.No.	Part No.	Description	Remark
D1	8-719-300-80	DIODE RU-1C	
D2	8-719-300-80	DIODE RU-1C	
D3	8-719-918-77	DIODE V19G	
D4	8-719-918-77	DIODE V19G	
D6	8-719-109-98	DIODE RD6.8ES-B3	
D7	8-719-110-09	DIODE RD8.2ES-B3	
D8	8-719-911-19	DIODE 1SS119	
D9	8-719-109-98	DIODE RD6.8ES-B3	
D10	8-719-911-19	DIODE 1SS119	

CONNECTOR

Ref.No.	Part No.	Description	Remark
E1	*1-506-371-00	2P PLUG (L)	
E2	*1-506-371-00	2P PLUG (L)	
E3	*1-506-371-00	2P PLUG (L)	
E4	*1-508-786-00	2P PLUG (M)	
E5	*1-566-060-11	PIN, CONNECTOR 8P	
E6	*1-566-055-11	PIN, CONNECTOR 3P	
E7	*1-566-062-11	PIN, CONNECTOR 10P	
E8	*1-566-060-11	PIN, CONNECTOR 8P	
E9	*1-566-055-11	PIN, CONNECTOR 3P	
E11	*1-566-055-11	PIN, CONNECTOR 3P	

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-178-12	IC UPC78L12	
IC2	8-759-145-58	IC UPC4558C	
IC3	8-759-700-24	IC NJM79M12A	

COIL

Ref.No.	Part No.	Description	Remark
L1	1-459-155-00	COIL (WITH CORE) 45UH	
L2	1-459-155-00	COIL (WITH CORE) 45UH	
L5	1-459-241-12	COIL, HORIZONTAL LINIALITY	
L6	1-459-348-00	COIL, VAR, FERRITE (HWC)	
L7	1-459-348-00	COIL, VAR, FERRITE (HWC)	
L8	1-459-348-00	COIL, VAR, FERRITE (HWC)	

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Replace only with part number specified.

E **EB** **EC**

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q1	8-729-800-80	TRANSISTOR 2SD1399-CA	
Q2	⚠8-729-902-00	TRANSISTOR 2SC3163	
Q3	8-729-168-82	TRANSISTOR 2SC2688	
Q4	8-729-168-82	TRANSISTOR 2SC2688	
Q5	8-729-114-22	TRANSISTOR 2SA1142	
Q6	8-729-178-54	TRANSISTOR 2SC2785	
Q7	8-729-900-85	TRANSISTOR DTC144WS	
Q9	8-729-117-54	TRANSISTOR 2SA1175	

RESISTOR

Ref.No.	Part No.	Description				Remark
R1	1-249-417-11	CARBON	1K	5%	1/4W	
R2	1-216-395-00	WIREWOUND	3.3	10%	2W	F
R3	1-249-417-11	CARBON	1K	5%	1/4W	F
R4	1-249-469-11	CARBON	100K	5%	1/4W	
R5	1-249-423-11	CARBON	3.3K	5%	1/4W	
R6	1-249-429-11	CARBON	10K	5%	1/4W	F
R7	1-215-921-11	METAL OXIDE	4.7K	5%	3W	F
R8	1-249-429-11	CARBON	10K	5%	1/4W	F
R9	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R10	1-215-880-00	METAL OXIDE	10	5%	2W	F
R12	1-216-379-11	METAL OXIDE	6.8	5%	2W	F
R13	1-215-868-00	METAL OXIDE	680	5%	1W	F
R14	1-247-716-11	CARBON	1.8K	5%	1/4W	F
R15	1-247-716-11	CARBON	1.8K	5%	1/4W	F
R16	1-247-716-11	CARBON	1.8K	5%	1/4W	F
R17	1-249-385-11	CARBON	2.2	5%	1/4W	F
R18	1-249-385-11	CARBON	2.2	5%	1/4W	F
R19	1-249-385-11	CARBON	2.2	5%	1/4W	F
R20	1-249-405-11	CARBON	100	5%	1/4W	
R21	1-249-423-11	CARBON	3.3K	5%	1/4W	
R22	1-249-440-11	CARBON	82K	5%	1/4W	
R25	1-215-469-00	METAL	100K	1%	1/6W	
R26	1-215-443-00	METAL	8.2K	1%	1/6W	
R27	1-215-455-00	METAL	27K	1%	1/6W	
R28	1-215-475-00	METAL	180K	1%	1/6W	
R29	1-215-475-00	METAL	180K	1%	1/6W	
R30	1-215-455-00	METAL	27K	1%	1/6W	
R31	1-247-893-11	CARBON	390K	5%	1/4W	
R32	1-249-417-11	CARBON	1K	5%	1/4W	
R33	1-247-895-00	CARBON	470K	5%	1/4W	
R34	1-215-485-00	METAL	470K	1%	1/6W	
R41	1-215-863-11	METAL OXIDE	100	5%	1W	F
R42	1-249-435-11	CARBON	33K	5%	1/4W	
R43	1-215-477-00	METAL	220K	1%	1/6W	
R44	1-249-413-11	CARBON	470	5%	1/4W	
R45	1-247-725-11	CARBON	10K	5%	1/4W	
R46	1-249-421-11	CARBON	2.2K	5%	1/4W	
R47	1-249-429-11	CARBON	10K	5%	1/4W	
R48	1-215-419-00	METAL	820	1%	1/6W	

TRANSFORMER

Ref.No.	Part No.	Description	Remark
T1	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE	
T2	1-437-078-00	TRANSFORMER, HORIZONTAL DRIVE	
T3	1-439-320-00	TRANSFORMER, FERRITE (HOT)	

*1-621-055-11 EB BOARD
****

CAPACITOR

Ref.No.	Part No.	Description				Remark
C1	1-126-094-11	ELECT	4.7MF	20%	25V	
C2	1-126-094-11	ELECT	4.7MF	20%	25V	
C3	1-136-159-00	FILM	0.033MF	5%	50V	
C5	1-102-106-00	CERAMIC	100PF	10%	50V	
C6	1-130-475-00	MYLAR	0.0022MF	5%	50V	
C7	1-126-157-11	ELECT	10MF	20%	16V	
C8	1-136-165-00	FILM	0.1MF	5%	50V	

DIODE

Ref.No.	Part No.	Description	Remark
D1	8-719-911-19	DIODE 1SS119	

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-100-75	IC UPC1394C	

RESISTOR

Ref.No.	Part No.	Description				Remark
R1	1-215-441-00	METAL	6.8K	1%	1/6W	
R2	1-249-417-11	CARBON	1K	5%	1/4W	
R3	1-249-431-11	CARBON	15K	5%	1/4W	
R4	1-249-427-11	CARBON	6.8K	5%	1/4W	
R5	1-249-441-11	CARBON	100K	5%	1/4W	
R6	1-249-423-11	CARBON	3.3K	5%	1/4W	
R7	1-249-429-11	CARBON	10K	5%	1/4W	
R8	1-249-413-11	CARBON	470	5%	1/4W	
R9	1-249-428-11	CARBON	8.2K	5%	1/4W	
R10	1-249-437-11	CARBON	47K	5%	1/4W	
R11	1-247-895-00	CARBON	470K	5%	1/4W	
R12	1-249-435-11	CARBON	33K	5%	1/4W	
R13	1-215-441-00	METAL	6.8K	1%	1/6W	
R14	1-215-441-00	METAL	6.8K	1%	1/6W	

CONNECTOR

Ref.No.	Part No.	Description	Remark
W1	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P	
W2	*1-506-602-11	PLUG, L TYPE (2.0MM PITCH) 5P	

****

*1-621-060-11 EC BOARD
****

CAPACITOR

Ref.No.	Part No.	Description				Remark
C1	1-161-330-00	CERAMIC	0.01MF	30%	25V	
C2	1-161-319-00	CERAMIC	470PF	10%	50V	
C3	1-161-319-00	CERAMIC	470PF	10%	50V	

IC

Ref.No.	Part No.	Description	Remark
IC1	8-759-145-58	IC UPC4558C	

TRANSISTOR

Ref.No.	Part No.	Description	Remark
Q1	8-729-205-96	TRANSISTOR 2SC3668	
Q2	8-729-205-95	TRANSISTOR 2SA1428-Y	

EC **ED** **HA** **X** **Y**

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

Ref.No.	Part No.	Description				Remark
		RESISTOR				
R1	1-215-423-00	METAL	1.2K	1%	1/6W	
R2	1-249-417-11	CARBON	1K	5%	1/4W	
R3	1-215-445-00	METAL	10K	1%	1/6W	
R4	1-215-445-00	METAL	10K	1%	1/6W	
R5	1-215-445-00	METAL	10K	1%	1/6W	
R6	1-215-445-00	METAL	10K	1%	1/6W	
R7	1-215-375-00	METAL	12	1%	1/6W	
R8	1-215-375-00	METAL	12	1%	1/6W	
R9	1-215-375-00	METAL	12	1%	1/6W	
		CONNECTOR				
W3	*1-506-603-11	PLUG, L TYPE (2.0MM PITCH) 10P				

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	*1-622-694-11	ED BOARD ********				
		CONNECTOR				
ED1	*1-566-055-11	PIN, CONNECTOR 3P				
		COIL				
L1	1-459-109-00	COIL, DUST CORE				
L2	1-459-109-00	COIL, DUST CORE				
		RESISTOR				
R1	1-215-879-51	METAL OXIDE	47K	5%	1W	F

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	*1-621-062-11	HA BOARD ********				
		CONNECTOR				
HA1	*1-566-045-11	PIN, CONNECTOR 6P				
HA2	*1-566-042-11	PIN, CONNECTOR 3P				
HA3	*1-566-041-11	PIN, CONNECTOR 2P				
HA4	*1-566-042-11	PIN, CONNECTOR 3P				
HA5	*1-566-041-11	PIN, CONNECTOR 2P				
		RESISTOR				
R451	1-215-464-00	CARBON	62K	5%	1/4W	
		VARIABLE RESISTOR				
RV451	1-228-936-00	RES, VAR, CARBON 10K				
RV452	1-228-936-00	RES, VAR, CARBON 10K				
RV453	1-228-936-00	RES, VAR, CARBON 10K				
RV454	1-228-936-00	RES, VAR, CARBON 10K				
RV455	1-228-936-00	RES, VAR, CARBON 10K				
RV456	1-228-937-00	RES, VAR, CARBON 20K				
		SWITCH				
S451	1-516-970-00	SWITCH, SLIDE				
S452	1-514-633-00	SLIDE SWITCH				

Ref.No.	Part No.	Description	Remark
	*1-621-051-11	X BOARD *******	
		TERMINAL	
PL1	*1-535-615-11	TERMINAL (LAMP SOCKET)	
		CONNECTOR	
X1	*1-566-041-11	PIN, CONNECTOR 2P	
X2	*1-566-041-11	PIN, CONNECTOR 2P	

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	*1-621-052-11	Y BOARD *******	
	*4-365-850-00	HOLDER, LED	
		DIODE	
D1	8-719-909-20	DIODE GL-9NG2	
		CONNECTOR	
Y1	*1-566-041-11	PIN, CONNECTOR 2P	

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		MISCELLANEOUS *************	
	⚠1-237-582-11	RESISTOR ASSY, HIGH-VOLTAGE	
	⚠1-413-289-11	REGULATOR, SWITCHING (TK-15)	
	⚠1-451-243-12	DEFLECTION YOKE (SY-130A)	
	⚠1-452-261-32	PICTURE TUBE NECK ASSY (362)	
	⚠1-452-261-41	PICTURE TUBE NECK ASSY (362)	
	⚠1-452-302-11	PICTURE TUBE NECK ASSEMBLY	
	⚠1-453-108-11	DC BLOCK, HIGH-VOLTAGE	
	⚠1-509-547-11	3P INLET	
	1-518-590-11	LAMP, PILOT (WITH HOLDER)	
FAN1	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
FAN2	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
FAN3	⚠1-541-449-11	FAN, DC (WITH SENSOR)	
	⚠1-552-437-11	SWITH, LEVER	
S901	⚠1-570-052-12	SWITCH, PUSH (AC POWER)(1 KEY)	
CNJ6	1-559-088-21	CONNECTOR ASSY, ROUND TYPE 14P	
SP1	1-503-255-00	SPEAKER	
V901	⚠8-733-023-05	PICTURE TUBE (SD-187 (R))	
V902	⚠8-733-021-05	PICTURE TUBE (SD-187 (G))	
V903	⚠8-733-022-05	PICTURE TUBE (SD-187 (B))	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

ACCESSORIES AND PACKING MATERIALS
****

Part No.	Description	Remark
⚠ 1-556-760-11	CORD, POWER (3 CORE)	
3-786-226-21	INSTRUCTION	
3-786-227-21	MANUAL, INSTRUCTION	
*4-310-638-00	BAG, PROTECTION	
*4-378-674-01	CUSHION (UPPER) (ASSY)	
*4-378-681-01	CUSHION (LOWER) (ASSY)	
*4-378-685-01	SPACER (200")	
*4-378-686-01	SPACER (200"), PICTURE TUBE	
*4-383-076-02	SPACER (VPH-1041QM ONLY)	
*4-383-085-01	CUSHION (A)	
*4-387-719-01	INDIVIDUAL CARTON (VPH-1041QM ONLY)	
*4-387-732-01	INDIVIDUAL CARTON (VPH-1042QM ONLY)	
*4-387-735-01	SPACER (VPH-1042QM ONLY)	

VPH-1041QM/1042QM

SONY

SERVICE MANUAL

AEP Model

VPH-1041QM
Chassis No. SCC-B82A-A
VPH-1042QM
Chassis No. SCC-B85A-A

SUPPLEMENT-1

File this supplement with the service manual.

INTRODUCTION

1. Part Number change for NECK ASSY.
2. BA Circut Board added part.

SECTION 7 DIAGRAMS

7-5. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARD

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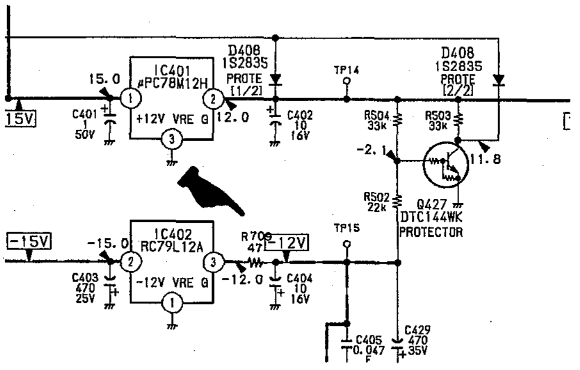

15V
15.0
C401 1 50V
IC401 μPC78M12H
+12V VRE G
12.0
D408 1S2835 PROTE [1/2]
C402 10 16V
TP14
R504 33k
R503 33k
D408 1S2835 PROTE [2/2]
-2.1
11.8
R502 22k
Q427 DTC144WK PROTECTOR
TP15
-15V
-15.0
IC402 RC79L12A
-12V VRE G
R709 47
-12V
-12.0
C403 470 25V
C404 10 16V
C405 0.047 F
C429 470 35V

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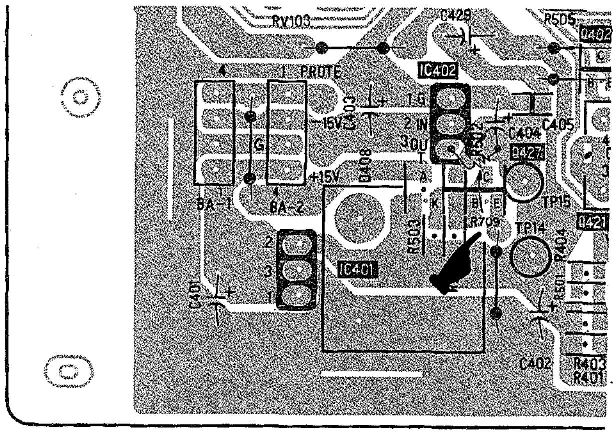

RV103
C429
R505
Q402
PROTE
IC402
-15V
C403
D408
+15V
BA-1
BA-2
C404
C405
Q427
TP15
TP14
Q421
R503
R709
IC401
C401
R404
R501
C402
R403
R401

SECTION 8 EXPLODED VIEWS

8-4. BASE ASSY

	No	Part No	Description
90	158	1-452-443-13	PICTURE TUBE NECK ASSEMBLY

MICROFILM

9-964-085-81

Sony Corporation
VC Group

English
90AE0911-1

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